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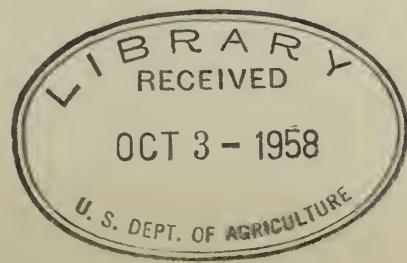
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WEST KENTUCKY TRIBUTARIES

(Mayfield and Obion Creeks and Bayou du Chien)
of
MISSISSIPPI RIVER AND TRIBUTARIES
PROJECT STUDY



TENNESSEE



WEST KENTUCKY TRIBUTARIES PROJECT
(KENTUCKY)

MAYFIELD AND OBION CREEKS AND BAYOU DU CHIEN
MISSISSIPPI RIVER AND TRIBUTARIES PROJECT REVIEW

REPORT ON
PRESENT AND ANTICIPATED AGRICULTURAL CONDITIONS

Prepared by The
U. S. Department of Agriculture for the Mississippi River Commission

Soil Conservation Service
Lexington, Kentucky
January 1957

AUTHORITY

This report has been prepared by the Soil Conservation Service, U. S. Department of Agriculture, covering studies made under authority of Section 6, Public Law 566, 83d Congress and upon request of the Mississippi River Commission. The basis for study was agreed upon as set forth in the Project Study Statement dated April 4, 1956.

AGENCY PARTICIPATION AND RESPONSIBILITIES

The U. S. Forest Service, the Agricultural Research Service, and the Soil Conservation Service have each participated in this West Kentucky Tributaries portion of the Mississippi River and Tributaries Project Study as outlined in the February 2, 1956 U. S. Department of Agriculture Memorandum of Understanding. Limited amounts of assistance were received from the Kentucky Extension Service and other agencies.

The Agricultural Research Service has been responsible for developing field crop and livestock commodity price data, field crop and livestock enterprise production cost data, interest rates and procedures for capitalization, amortization and discounting, and has assisted the Soil Conservation Service in studies of field crop and pasture yields and in over-all economic procedures. All woodland yields, values and costs were developed by the Forest Service.

The Soil Conservation Service, through the office of the Kentucky State Conservationist, has in general been responsible for coordinating and conducting the study and preparing this report. It has classified the soils of the area in accordance with the major soil groupings. It has estimated the extent and cost of farm drainage systems.

The Soil Conservation Service in Kentucky prepared a special field schedule (see sample, following page) to use in interviewing selected reliable farm owners and operators in the project area. These selections were made so as to include several samples of each soil unit within each reach. These schedules were used to determine land use, yields, drainage participation, and possible land conversions under present, future without project, and future with project conditions. Approximately one hundred (100) schedules were taken and summarized by zone and reach. In addition, land use (for more accurate crop distribution) was outlined on aerial photographs to include from 30 to 80 percent of the open land area in the various zones and reaches. These summaries were used as a guide by work unit conservationists, soil scientists, farmers and other agricultural workers to base their estimates of present and future conditions pertaining to crop distribution, yields, land conversion and drainage participation.

SAMPLE
MISSISSIPPI RIVER TRIBUTARIES PROJECT
KENTUCKY SCHEDULE

Farmer's Name	John Doe	Tributary	Obion
Photo Number	42A-29	County	Hickman
Zone	B	Taken By	JLA
Reach	2	Date	7-2-56

Total Open land in Floodplain 68 ac.

OPENLAND SAMPLE:

Letter Code of Sample Area	A	B	C
MRT SOIL UNIT	7	7	8
Acres in Sample Area	10 ac.	20	6 ac.
Portion of Sample Area Now Drained (AC)	10 ac.	10	0
Present Land Use (1956)	Pasture	Corn	Pasture
Present Yield Per Acre (Avg.)	6 AUM	50 bu.	4 AUM
Expected Future Drainage without Proj.(Ac.)	0	0	0
Future Land Use Without Projects (Ac.)	Pasture	Corn	Pasture
Future Yield Without Project	6 AUM	50 bu.	4 AUM
Expected Future Drainage With Proj.(Ac.)	0	10	6
Future Land Use With Projects (Ac.)	Corn	Corn	Soybeans
Future Yield With Project	60 bu.	65 bu.	25 bu.

Total Woodland in Floodplain: 20 Clearing Costs (Per.Ac.) \$60.00

1. Acres to be cleared without project 0

a. Portion of this to be drained (Ac.) 0

b. Land Use Expected after clearing 0

2. Acres to be cleared with project 5 (Locate cleared area on Photo)

a. Portion of this to be Drained(Ac.) 5

b. Land Use Expected after Clearing Pasture

METHOD OF COMPUTING AGRICULTURAL VALUES CREDITABLE TO PROJECT

Data presented in this report are intended to portray three different situations with respect to land use, cropping patterns, crop yields, etc. - (1) the current situation, (2) the future situation without the proposed project, and (3) future conditions with the proposed project. The basis for computing agricultural benefits in this report is the difference in crop values between the second and third situation listed. The major reason for this type of calculation is that it provides a systematic means of excluding non-project influences which are expected whether a project is installed or not. Because of current land development operations and expected changes in commodity price and price-cost relationships, for example, future land use and cropping systems without the project may be different from present. This difference is not credited to the project.

LIMITS OF APPLICATION OF ESTIMATES

The estimates cover an appraisal of the agricultural values and costs that can be expected as a result of agricultural drainage in association with installation of the proposed project works. However, the data includes no estimates of flood damage reduction, its values or costs, though the land use and cropping estimates reflect the flood protection that would be afforded by the proposed project works. Average flood-free yield estimates have been used throughout the study so that they can be used as a basis for calculation of flood damage reduction by the Corps of Engineers, based upon its own hydrologic studies. The Department of Agriculture, having made no hydrologic studies of its own in the area, has developed estimates on the basis of hydrologic data provided by the Corps of Engineers. This data included the delineation of limits of project effectiveness, and maximum overflow that established the conditions for project study. The Department of Agriculture has classified and grouped the soils of the project area according to similar physical characteristics as a basis for crop yield and land conversion estimates. Further studies may result in revised hydrologic data that would require modification of the agricultural data contained herein.

DESCRIPTION OF PROJECT

The West Kentucky Tributaries Project consists of proposed channel enlargement and improvement on Mayfield and Obion Creeks and Bayou du Chien in Western Kentucky. These three creeks cover portions of Ballard, Carlisle, Fulton, Graves, Hickman, and McCracken Counties (see cover map). Total bottomland involved in the project is 89,979 acres.

Each creek was divided into reaches. Reach 1 on Mayfield Creek extends from its confluence with the Mississippi River to West Fork Creek; Reach 2, from this point to the confluence with Wilson Creek; Reach 3, from Wilson Creek to the ICRR trestle 1 mile west of Melber; Reach 4, from this point to Boaz; Reach 5, from Boaz to Sedalia. Obion Creek was divided into two reaches: Reach 1 extending from its mouth to KY. 58, about 6 miles Northwest of Clinton, and Reach 2 from this point upstream to the confluence of Obion Creek

with Brush Creek. Reach 1 of Bayou du Chien extends upstream from its confluence with the Mississippi River to the confluence with Little Bayou du Chien 1 mile East of Ky. 127; Reach 2, from there to Water Valley. Each reach may contain one or more zones.

On Mayfield Creek there are 10,496 acres in Zone C, Reach 1, (flooded by Mississippi River) and 2,749 acres in Zone C, Reach 5, (headwater area) which will not receive benefits from the project. There is a total of 19,154 acres in the six B Zones of Mayfield Creek which may receive both floodwater reduction and drainage benefits. The corresponding six A Zones total 5,386 acres which will receive only drainage benefits from the proposed project.

The C Zone of Bayou du Chien, (Flooded by Mississippi River) contains 15,005 acres with 3,299 acres in the B Zone and 1,803 acres in the A Zone.

Obion Creek contains 15,965 acres in the lower C Zone, (Flooded by Mississippi River); 1,868 acres in the upper C (headwater) Zone; 10,856 acres in the B Zone, and 3,398 acres in the A Zone.

The present drainage condition in the upper half of Zone B, Reach 2, Obion Creek, is such that no future agricultural improvement in the floodplain can be expected until suitable farm drainage outlets are made available. Bayou du Chien (Reach 2, Zone B) and the lower B Zones of Mayfield Creek are becoming progressively wetter and within a few years it appears that normal crop production will be impossible due to the continuing sediment deposits in the main stream channel.

There is, at the present time, considerable soil erosion on the uplands surrounding the three West Kentucky Tributaries. This is due to improper land use, lack of complete conservation farming practices and especially the susceptibility of these local loess soils to erosion. These sediments are being deposited not only at the base of originating slopes, but are also carried on down to the floodplains and channels of these tributary streams. There was no specific nor detailed sediment study carried out on the West Kentucky Tributaries. A short reconnaissance was made by Corps of Engineers and Soil Conservation Service personnel to determine the source of some of the sediment deposits. This field trip seemed to indicate a large sediment producing area on Obion Creek above the confluence with Brush Creek. By mutual agreement of both agencies, it was decided to terminate channel improvement at this point.

There have been, in past years, several attempts at drainage improvements in these West Kentucky Tributaries by local organizations but none of the improvements are satisfactory at this time. The land-owners of the Obion Creek have recently organized into the Obion Creek Conservancy District. This Obion Creek Watershed has also been designated for consideration and study by the Soil Conservation Service under Public Law 566.

General farming predominates throughout the project area. Major crops of the bottomlands, where adequately drained, are corn, soybeans, hay and pasture. In the poorly drained areas, the present level of agricultural development is low and much of this land has remained in or reverted to woodland. Because of the flooding hazard and varying drainage conditions in portions of the project area, the crop returns are highly variable and often low resulting in large areas of land remaining idle for varying periods of time. In the lower half of all three creeks, from 80 to 90 percent of the farms are large (over 260 acre size) while in the upper half of the creeks the reverse is true; that is, from 80 to 90 percent of the farms are small.

The project, as proposed, will primarily benefit agriculture and benefits will accrue principally from higher yield of crops already being grown due to improved farm drainage, and also from some land conversions to more productive crops.

SOILS

Imperfectly and poorly drained, medium textured alluvial soils from loess residuum (soil units 7 and 8 respectively) predominate throughout the bottomland in most reaches of all creeks. They cover about 3/4 of the entire project constituting nearly all land in Zone A, over 90 percent of the land in Zone B, and about 50 percent of the land in Zone C. Extent of these soil units (7 & 8) are nearly equal (See Table I). The remaining 10 percent of the land in Zone B and over 3 percent of Zone C, is in swamp or water area. About a third of the land in Zone C is imperfectly and poorly drained soils with clay or clay loam textures, with the remaining portion being of medium texture or better drained.

Both the imperfectly and the poorly drained soils (Units 7 & 8) are freely permeable but suffer from a fluctuating high water table.

The imperfectly drained bottomlands of soil unit 7 have brown surfaces and mottled gray, yellow, and brown subsurface layers. They have a moderate to high productive capacity. About 3/4 of the area of the soils in this unit is open. The highest production increment for drainage and flood reduction would result on these soil areas. The poorly drained bottomland of Unit 8 is dominantly gray and strongly mottled throughout, acid and low in organic matter content. These soils have a fair to moderately high productive capacity when adequately drained. Because of flooding damage and lack of drainage about 3/4 of the area of the soils in this unit is wooded. A substantial production increment from drainage and flood reduction would result in these soil areas.

The portion in Zone C of imperfectly and poorly drained soils is about 85% wooded because of backwater standing on them for long periods. The soils in Units 1, 2, and 6 constitute about 15% of the total area. They are somewhat poorly drained Mississippi River bottomland (Unit 1 - 9% of area) and terraces (Unit 2 ~ 10% of area) in addition to having a surface texture rather difficult to cultivate and

being subject to periodic or lengthy overflow or backwater, have also rather slow internal drainage. They are inherently productive and high yields of adapted crops can be obtained when surface water accumulations are removed and drainage systems installed. Soils in Unit 6 (5% of area) resemble those in Units 1 and 2, except that the surface texture is not so fine or heavy and is more satisfactorily worked.

Soil Units 5, 9, 10, 11, and 13 constitute only about 8% of the total project, all of this in Zone C which is outside of the area of benefit from the project. Unit 5 (3.7% of project) is moderately well to well drained Mississippi River bottomland soils, mostly open, productive and do not need drainage. Units 9 and 10 are moderately well to poorly drained loess terrace soils that are covered yearly by backwater (3.3% of area.) They have fragipan development in the subsoil at depth of from 1 to 3 feet. Unit 11 includes the sandy, excessively drained area in the bottomland and total with unit 13 (river wash sand) about 1 percent of the area.

LAND USE

The entire project area of the three West Kentucky Tributaries consists of 45% open land and 55% woodland according to current Corps of Engineers data. The Reach 1, C Zone, contains much higher amounts of woodland, ranging from 73 to 78%, while the A Zones contain only from 18 to 30% woodland. (See Table I's).

The C Zones, especially on the better drained soils of the Mississippi floodplains, there is at present a slight trend toward conversion of some woodland to cropland (principally corn and soybeans). The reverse is generally true in the B Zones, particularly in the lower reaches; some cropland and pasture land is being allowed to revert to woodland. This woodland encroachment on cropland is allowed because the drainage situation is becoming progressively worse and causing a very low crop net income.

The open floodplains along the Mississippi River are almost always cropped in either corn or soybeans while the open floodplains up in the tributaries are principally in pasture, hay, corn and soybeans.

This area contains some of the best timber that will be found on farm woodlots in the Delta tributaries. Except in a few limited areas, such as Zone A-Reach 2, Obion Creek, recent cutting has been moderate to light. A good pole size stand, made up mainly of desirable species replaces sawtimber and provides the basis for continued timber harvests. Fire and grazing damage, while present, are relatively light compared to many portions of the Mississippi Delta. Practically all of the area is good timber growing land. Some old fields were noted which have reverted to woodland within the past 10 to 20 years and are well stocked with gum and ash supplemented by cottonwood, maple and birch.

There is evidence of an appreciation for the forest crop. Forest protection has been given attention. Average age of sawtimber stands is about 50 years and although annual cutting is taking place, there has been no widespread devastation of second growth stands.

Markets are largely confined to sawlogs. Several good portable sawmills are operating locally and some of the better logs are hauled or shipped to larger mills tributary to the area. A hickory handle mill is operating sporadically. Markets and sustained income can be expected to continue on an increasing scale stabilized by conservative woodland management.

CROPPING PATTERNS

Type of crop and cropping patterns vary with the soil mapping unit and especially with the degree of drainage. Well drained soils are used principally for corn and hays while the poorly drained soils are used mainly for soybeans and grasses. Up in the tributary bottoms, on the better soils, a continuous corn crop is often grown year after year. In other fields a rotation of corn and soybeans may be practiced while a longer rotation of hay (several years) and then corn or soybeans sometimes exists. Many of the pasture fields are semi-permanent, being cultivated in corn only occasionally and then returned to a pasture condition (usually a Kentucky Fescue-Ladino clover mixture).

Generally when woodland is cleared, the land is cultivated (mostly corn) for several years and commonly idle land is converted back to cultivation rather than pasture.

The B and A Zones have an almost identical cropping pattern, consisting of hay, pasture, corn and soybeans, while the C Zones (Reach 1) seldom are cropped in anything other than corn and soybeans. In the future, without project, only slight changes will take place, some clearing in the C Zones, while some acreage will return to woodland in the B Zones. See Tables II, III, and IV for crop distribution.

YIELDS

Field crop and pasture yields are estimates of yields that are currently being attained or that can be expected to be attained by average producers, using a reasonable level of management, under future conditions, with and without drainage. All yields, in all project zones, are for average flood-free years. Within Zone B, under present, future without project, and future with project conditions, there are varying percentages of total acreage that is or would be drained. These percentages were used in computing weighted yields for Tables II B, III B, and IV B for each crop.

Computations for Zone A are only for net acreages to be drained, and since none of the acreage in Zone C will be drained, weighting was unnecessary in these two zones.

Woodland yields are based upon studies conducted in the area by the U. S. Forest Service. Yields are based on average growth rates applicable to the species and stand size and ages found in the area. The yields represent the units of wood products and value that will be attained on the average for the next 50 years under the level of management that can be expected to prevail based on present findings in the project area. By reason of past conservative forest land use, high yields are immediately attainable.

PRICES

Woodland Production values are based on 1955 prices f.o.b. mill or siding. These prices are used, since it appears to be a realistic price projection for future conditions.

Projected field crop and livestock prices used in this report were developed jointly by the Agricultural Research Service and Agricultural Marketing Service. Projected prices have been used, based on most likely long-range expectations, and estimates of cropping patterns have been influenced by the assumption that such prices will prevail. Projected prices were developed from studies of the prospective conditions of product supplies and requirements. In order to remove the effects of price support programs and in order to reflect the economy of production in competing areas, the projections assume the eventual attainment of a relatively free market for agricultural products.

In evaluating the long-run aspects of deferred land development and improvement projects, the use of the projected prices makes it unnecessary to restrict the acreage of "control" crops in crop income computations.

Crop acreages shown for future conditions are not compatible with a projection of current prices into the future, however. Neither do they seem to portray attainable goals for restricted crops during the surplus disposal period in the immediate years ahead. Therefore, if current prices were to be used in projection of future project conditions, or for projects where early construction is contemplated, there would appear to be little or no justification for increasing the acreage of surplus or "control" crops over current allotment acreages. Farmers in this area are planting corn to the extent of their current allotments (or over). Since this is true, no acreage increases can logically be anticipated in the future due solely to physical improvements whenever current prices and control programs are assumed to prevail.

CROP PRODUCTION COSTS

Production costs for forest products are based on costs prevailing in 1955. These costs are estimated to be reasonable level for projection to future conditions. Costs cover conversion of standing timber to raw wood products at mill or siding and a cultural and crop management cost consisting of an amortized annual charge for timber stand improvement work, an allowance for management and supervision by owners, their representatives, and foresters and forest protection.

Production costs for all field crop and livestock enterprises were developed from a study of large and small Mississippi River bottomland farms. Since production costs by enterprises are not the same for large farms as for small, these costs were weighted in accordance with the proportionate acreage of large and small farms expected to exist in the project area under future conditions. Production costs, as used for project evaluation purposes, include all operational costs required to attain yield levels indicated in project cost tables (such as allowances for labor, power, machinery, materials and services required to produce and market the product), all farm overhead costs necessary in farm operation (except a charge for land), and an allowance for management expense which includes an estimated amount required for the operator's management and for any employed management personnel.

Land charges were omitted from the cost analysis because net returns to land were being determined for conditions with and without the project. Overhead charges (which include such items as a charge for buildings, upkeep of operational machinery, interest on investment, and insurance) and management charges were allocated to enterprises in proportion to the specified costs of production expended on each crop. Some production costs have been treated as variables with yield levels attained (most harvest costs, fertilizer usage, poisoning, etc.) while other costs have been assumed to be fixed regardless of yield (such as soil preparation, cultivation, and machine-picking cost). Preharvest, harvest, overhead and management costs have been computed separately to derive total crop production costs.

Production costs used for projections are approximately 96 percent of the 1955 level of costs incurred by farmers.

NET CROP PRODUCTION RETURNS

The analysis of crop production by soil units, upon which these summary tables are based, indicate the gross value of production to be greater than production costs in this project. Returns to enterprises vary from one soil unit to another. In general, however, the corn enterprise shows the largest net returns to land, with soybeans, pasture (beef production), and hay following in the order listed. Higher yields, as expected, show larger net returns to land than lower yields for the same enterprise. Inasmuch as the

analysis assumes flood-free yields, consideration has not been given to the effect of flood damage on average annual net income.

LAND USE CONVERSIONS AND COSTS

Table VI shows the land use conversions that are anticipated from the influence of the West Kentucky Tributaries Project and development of the associated farm drainage systems. There are several categories of woodlands, amounting to about 35 percent of the total that are not considered for future conversion. Considerable conversions of woodland to pasture and general cultivated crops can be expected after major drainage outlets are provided for farm drainage systems. It is estimated that these conversions will all be profitable enough to be desirable from the standpoint of the owner and operator. If the operator secures the inducement of a reasonable income over and above his loss of present woodland value and his land use conversion and drainage costs, he will probably go ahead with land conversions rather than wait for a long period of years for deferred woodland income.

Items of conversion costs include all expense of putting land from its present state into condition to produce a crop or live-stock enterprise, with only normal production costs remaining to be incurred.

All capital costs of conversion have been amortized at 5 percent for a period of 50 years. All maintenance costs are included in Table VI.

FARM DRAINAGE SYSTEMS AND COSTS

Estimates of amounts and costs of farm drainage that may be expected to be installed after sufficient major outlets are constructed are tabulated in Table VII. These estimates anticipate that 78 percent of soil unit 8 and 86 percent of soil unit 7 will be drained and used for crop or pasture production. Approximately 5 percent of the land is used for farmsteads, roads, etc. An additional area, estimated at 12 percent of the total wet open land, will not be drained because of a lack of farmer participation.

Costs were computed from current levels. They include the installation cost required for farm drainage systems for satisfactory removal of surface water accumulations that are likely to occur for the various conditions of rainfall and run-off involved - (installation costs include construction, engineering and contingency). Cost estimates were based on all ditching and structural needs for systems to serve an average of one square mile. Estimates were also based on standard design data to fit conditions involved.

Farm drainage system capital costs have been amortized for a useful life period of 10 years at 5 percent. Maintenance costs, (as well as installation costs), varying with the soil mapping unit and the land use, have been added to the amortized annual equivalent

of installation cost to derive the annual cost of farm drainage systems. The life of the farm drainage systems was estimated to be ten years, principally because of soil conditions. Also, the low agricultural development of most of the project area would indicate a lesser attention to maintenance of farm drains. It includes large areas of from moderately wet to swamp lands, much of which will remain in woodland even after the proposed project.

GROUP DRAINAGE SYSTEMS AND COSTS

It was mutually determined and agreed that group drainage was not adaptable to this area. This is due principally to topography (relatively narrow valleys) and soil conditions above the proposed main channel improvements.

BENEFITS AND ASSOCIATED COSTS

Table IX summarizes net annual returns from Tables III and IV for Zones A and B, annual costs of making land conversions (Table VI) and establishing and maintaining farm drainage systems (Table VII).

Returns and gross benefit, and all associated cost items have been discounted, in last column of Table IX to account for an estimated ten year lag and buildup period to full installation and maintenance requirements and benefit accrual. This time length estimate was based on the slower progress and adoption of a portion of the farmers in the area to a new development; to a certain extent on the financial conditions of the farmers in the area; and on the time, after farm drainage is complete, to achieve desired yields.

SUMMARY

The West Kentucky Tributaries Project area has a low agricultural development due mainly to poor drainage conditions and flooding hazards. Only local attempts have been made in channel clean-out and clearing and none seems to be functioning satisfactorily at this time. Conditions are becoming progressively worse and without relief there will be little further agricultural development in the project area; but with the project, progressive and higher agricultural development can be expected. This assumes, of course, that farm drainage systems will be installed on wet lands.

In each reach and zone of the West Kentucky Tributaries project the net value of farm production was calculated for both future without proposed project and future with project. The difference between the two conditions is assumed to be due to project benefits (primarily drainage benefits). This benefit in dollars was calculated to be: Bayou du Chien \$32,956; Obion Creek \$67,941; and Mayfield Creek \$162,798. (See Project Area Summaries - Tables IX).

Yields for flood-free years have been used throughout this report. The Corps of Engineers, therefore, may need to modify the future without project values to account for flood damage. They may also need to modify future with project values to account for less than complete flood protection under project conditions.

MAYFIELD CREEK

Portion of

WEST KENTUCKY TRIBUTARIES

of

MR & T STUDY

SUMMARY TABLES

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 State - Kentucky

TABLE I

Existing Land Use by Soil Mapping Units

Zone A - Drainage Calculations Only

Reach 2

Soil mapping unit	Open (Acres)	Wooded (Acres)	Total (Acres)
7	625	71	696
8	176	45	221
Subtotal - all soils	801	116	917
Water	-	-	0
Total - Reach 2, Zone A	801	116	917

Zone A - Drainage Calculations Only

Reach 3

7	571	20	591
8	77	11	91
Subtotal - all soils	648	34	682
Water	-	-	-
Total - Reach 3, Zone A	648	34	682

Zone A - Drainage Calculations Only

Reach 4

7	637	13	650
8	442	71	513
Subtotal - all soils	1,079	84	1,163
Water	-	-	-
Total - Reach 4, Zone A	1,079	84	1,163

Zone A - Drainage Calculations Only

Reach 5

7	390	55	445
8	324	80	404
11	0	0	0
Subtotal - all soils	714	135	849
Water	-	-	8
Total - Reach 5, Zone A	714	135	857

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 State - Kentucky

TABLE I, Cont'd.

West Fork Reach

Soil mapping unit	Open (Acres)	Wooded (Acres)	Total (Acres)
7	873	215	1,088
8	15	47	62
Subtotal - all soils	888	262	1,150
Water	-	-	-
Total -West Fork Reach			
Zone A	888	262	1,150

Wilson Reach

7	450	53	503
8	86	23	109
Subtotal - all soils	536	76	612
Water	-	-	5
Total -Wilson Reach,			
Zone A	536	76	617
Total Soils- A Zones	4,666	707	5,373
Total Water - A Zones	-	-	13
TOTAL: ALL A ZONES			5,386

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 State - Kentucky

TABLE I - Cont'd.

Existing Land Use by Soil Mapping Units

Zone B - Drainage and Flood Control Calculations

Reach 2

Soil mapping unit	Open (Acres)	Wooded (Acres)	Total (Acres)
7	890	152	1,042
8	810	1,990	2,800
13	7	11	18
14	-	432	432
Subtotal - all soils	1,707	2,585	4,292
Water	-	-	97
Total - Reach 2, Zone B	1,707	2,585	4,389

Zone B - Drainage and Flood Control Calculations

Reach 3

7	2,078	680	2,758
8	746	2,349	3,095
14	-	65	65
Subtotal - all soils	2,824	3,094	5,918
Water	-	-	131
Total - Reach 3, Zone B	2,824	3,094	6,049

Zone B - Drainage and Flood Control Calculations

Reach 4

7	1,753	535	2,288
8	1,396	2,028	3,424
14	-	83	83
Subtotal - all soils	3,149	2,646	5,795
Water	-	-	200
Total - Reach 4, Zone B	3,149	2,646	5,995

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 State - Kentucky

TABLE I- Cont'd.

Zone B - Drainage and Flood Control Calculations
 Reach 5

Soil mapping unit	Open (Acres)	Wooded (Acres)	Total (Acres)
7	496	67	563
8	301	138	439
11	1	43	44
Subtotal - all soils	798	248	1,046
Water	-	-	18
Total - Reach 5, Zone B	798	248	1,064

Zone B - Drainage and Flood Control Calculations
 West Fork Reach

7	704	424	1,128
8	35	60	95
Subtotal - all soils	739	484	1,223
Water	-	-	46
Total - West Fork Reach, Zone B.	739	484	1,269

Zone B - Drainage and Flood Control Calculations
 Wilson Reach

7	246	47	293
8	36	43	79
Subtotal - all soils	282	90	372
Water	-	-	16
Total - Wilson Reach, Zone B	282	90	388

Total Soils - B Zones	9,499	9,147	18,646
Total Water - B Zones	-	-	508
TOTAL: ALL B ZONES	-	-	19,154

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 State - Kentucky

TABLE I-Cont'd.

Existing Land Use by Soil Mapping Units

Zone C - No Project Benefits

Reach 1

Soil mapping unit	Open (Acres)	Wooded (Acres)	Total (Acres)
5	1,042	312	1,354
6	227	2,323	2,550
7	1,182	670	1,852
8	638	3,329	3,967
9	86	20	106
10	102	-	102
11	20	4	24
13	20	18	38
14	1	276	277
<u>Subtotal - all soils</u>	<u>3,318</u>	<u>6,952</u>	<u>10,270</u>
Water	--	-	226
<u>Total - Reach 1, Zone C</u>	<u>3,318</u>	<u>6,952</u>	<u>10,496</u>

Zone C - No Project Benefits

Reach 5

7	1,895	351	2,246
8	299	109	408
<u>Subtotal - all soils</u>	<u>2,194</u>	<u>460</u>	<u>2,654</u>
Water	-	-	95
<u>Total - Reach 5, Zone C</u>	<u>2,194</u>	<u>460</u>	<u>2,749</u>
<u>Total Soils - C Zones</u>	<u>5,512</u>	<u>7,412</u>	<u>12,924</u>
<u>Total Water - C Zones</u>	<u>-</u>	<u>-</u>	<u>321</u>
<u>TOTAL C ZONES</u>			<u>13,245</u>
<u>GRAND TOTAL - ALL SOILS</u>	<u>19,677</u>	<u>17,266</u>	<u>36,943</u>
<u>GRAND TOTAL - ALL WATER</u>	<u>-</u>	<u>-</u>	<u>842</u>
<u>GRAND TOTAL - PROJECT AREA</u>	<u>-</u>	<u>-</u>	<u>37,785</u>

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 2
 State - Kentucky

SUMMARY - TABLE II A
 (Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCTION
 EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		Total
			Unit	Per acre 2/	
All	Open Land	706			
	Crops:				
	Corn	391	bu.	28	10,995
	Soybeans	-	-	-	-
	Hay	-	-	-	-
	Idle	15	lb.bf.	-	-
	Pasture	264	164	-	43,224
	Other 1/	36	-	-	-
	Forest Land	110	-	-	-
Total		811 3/			

1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Calculated from columns 3 and 6, rounded to nearest unit.
 3/ Total area, less 101 acres not needing drainage.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 2
 State - Kentucky

SUMMARY - TABLE III A.
 (Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Unit	Production			Value of production			Net return		
				Per acre	2/ Total	Per unit	Total	Per acre	Total	Per acre	Total	Dollars
All	Open land	578										
Crops:												
Corn	bu.	236	bu.	36	8,476	1.45	12,291	30.99	7,314	4,977		
Soybeans	bu.	49	bu.	22	1,054	2.30	2,424	27.04	1,325	1,099		
Hay	ton	29	ton	1.5	42.6	20.00	852	27.55	799	53		
Idle		13		-	-	-	-	-	-	-	-	
Pasture	lb.bf.	215	lb.bf.	200	42,957	0.2004	8,608	20.59	4,426	4,182		
Other 1/		36		-	-	-	-	-	-	-	-	
Forest Land		59		-	-	-	-	-	-	-	-	
Total		637 4/										

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area less 229 acres not needing drainage and non-participation, and 51 acres estimated to remain in woodland.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 2
 State - Kentucky

SUMMARY - TABLE IV A
 (Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production			Value			Cost		
			Unit	Per acre	2/ Total	of production			of production		
						Per unit	Total	Per acre	Per acre	Total	Net return
			Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All	Open land	637									
Crops:											
Corn	bu.	60				17,300	1.45	25,085	49.09	14,139	10,946
Soybeans	bu.	29				1,880	2.30	4,324	33.20	2,158	2,166
Hay	ton	2.3				77.5	20.00	1,550	41.91	1,383	167
Idle		0									
Pasture	lb.bf.	279				59,906	0.2004	12,005	27.59	5,931	6,074
Other 1/		36				-	-	-	-	-	-
Forest Land		0									
Total		637 4/									

1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Calculated from columns 3 and 6, rounded to nearest unit.
 3/ Calculated from columns 3 and 10, rounded to nearest cent.
 4/ Total area, less 229 acres not needing drainage and non-participation, and 51 acres to remain in woodland.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 2
 State - Kentucky

SUMMARY - TABLE II B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION
 EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		Total
			Unit	Per acre 2/	
All	Open Land	1,804			
	Crops:				
	Corn	446	bu.	36	16,145
	Soybeans	276	bu.	13	3,501
	Hay	76	ton	1.6	122
	<u>Idle</u>				
	Pasture	241	-	-	
	Other 1/	668	lb.bf.	146	97,782
	Forest Land	97	-	-	
		<u>2,585</u>			
	Total	4,389			

1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Calculated from columns 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 2
 State - Kentucky

SUMMARY - TABLE III B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production Unit	Value of production			Cost of production per acre	Net return per acre
				Per acre	Total	Per unit		
All	Open land	1,804						
Crops:								
Corn	bu.	570	40	22,820	1.45	33,089	34.06	19,412
Soybeans	bu.	176	20	3,487	2.30	8,021	25.81	4,543
Hay	ton	105	1.7	174.3	20.00	3,486	30.69	3,222
Idle		207	-	-	-	-	-	-
Pasture	lb. bf.	649	175	113,504	0.2004	22,746	17.66	11,460
Other 1/	-	97	-	-	-	-	-	-
Forest Land		127	-	-	-	-	-	-
Total		1,931 4/						
				68,908				29,445

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, and rounded to nearest unit.

3/ Calculated from columns 3 and 10, and rounded to nearest cent.

4/ Total area, less 2,458 acres to remain in woods because of non-participation in land conversions.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 2
 State - Kentucky

SUMMARY - TABLE IV B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Unit	Production		Value of production		Cost	
				Per acre	2/Total	Per unit	Total	Per acre	Total
A.11	Open Land	1,931						Dollars	Dollars
	Crops:								
	Corn	804	bu.	55	44,336	1.45	64,287	45.34	36,454
	Soybeans	202	bu.	26	5,167	2.30	11,884	30.51	6,163
	Hay	136	ton	2.2	302.4	20.00	6,048	39.86	5,421
	Idle								
	Pasture	685	lb.bf.	240	-	164,125	0.2004	32,891	24.34
	Other 1/ Forest Land	97	-	-	-	-	-		
		0							
	Total	1,931	4/						

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area Zone B, Reach 2, less 2,458 acres to remain in woods because of non-participation in land conversions.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 2
 State - Kentucky

TABLE V
 REACH 2 SUMMARY BY SOIL MAPPING UNITS

Soil unit	Acres	Future without project (value of production in dollars)		Future with project (value of production in dollars)		Difference in net value
		Gross	Net	Gross	Net	
7	462	21,429	11,966	ZONE A - (Not subject to flooding)		
8	139	3,473	2,281	9,463	34,922	6,395
Subtotal 2/	601	24,902	14,247	1,192	8,042	2,303
				10,655	42,964	8,698
				ZONE B (Subject to flooding)		
7	942	50,011	28,786	21,225	71,979	30,957
8	885	18,897	10,677	8,220	43,131	19,441
13	7					11,221
Subtotal 3/	1,834	68,908	39,463	29,445	115,110	50,398
						20,953
Total	1/	2,435	93,810	53,710	40,100	158,074
						88,323
						69,751
						29,651

1/ Total area, Reach 2, less acreage in notes 2 and 3 below.
 2/ Total area of Zone A reduced by 316 acres not anticipated to receive drainage benefits from project.
 3/ Total area of Zone B reduced by 27 acres "other land" and 2,458 acres estimated to remain as woodland.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 2
 State - Kentucky

TABLE VI
 LAND CONVERSIONS WITH PROJECT

Type of Conversion <u>1/</u>	Total Amount	Cost of clearing	Cost of smoothing	Cost of Pasture establishment	Total cost
	<u>Acres</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
<u>Per Acre</u>					
W to GC	-	56	-	-	56
W to P	-	56	-	40	96
P to GC	-	-	-	-	0
X to P	-	-	-	40	40
X to GC	-	-	-	-	0
GC to P	-	-	-	40	40
<u>Reach</u>					
W to GC	197	11,032	-	-	11,032
W to P	0	-	-	-	0
P to GC	129	-	-	-	0
X to P	179	-	-	7,160	7,160
X to GC	34	-	-	-	0
GC to P	0	-	-	-	0
Total Reach 2					18,192
Annual amortized value <u>2/</u>					997
Annual maintenance <u>3/</u>				1,432	1,432
Total annual cost of conversions					2,429

1/ W—woodland; GC—general crops; P—pasture; X—idle.

2/ Amortized over 50-year period at 5 percent.

3/ Pasture maintenance at \$8.00 per acre per year.

4/ Included in clearing costs.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 2
 State - Kentucky

TABLE VII - SUMMARY
 ANALYSIS OF FARM DRAINAGE SYSTEMS COSTS

Zone /	Soil mapping unit and land use	Area	Total Cost	Installation 1/ Dollars	Annual equivalent cost 2/ Dollars	Annual maintenance cost	Total annual Cost
		Acres				Dollars	Dollars
7 - Cropland		853	20,270	2,625	2,339		4,964
		322	6,396	828	246		1,074
8 - Cropland		396	9,411	1,218	1,086		2,304
		408	8,103	1,019	312		1,361
Total		1,979	44,183	5,720	3,983		9,703

1/ Includes engineering and contingency.
 2/ Amortized at 5 percent over 10 years. (0.1295)

Basin - West Ky. Tributaries
Project - Mayfield Creek
Reach - 2
State - Kentucky

TABLE IX
SUMMARY OF ANNUAL NET PRODUCTION RETURNS
AND ASSOCIATED COSTS

Item	Total	Discounted Amount
	<u>Dollars</u>	<u>Dollars</u>
1. Net return with project	69,751	
2. Net return without project	40,100	
3. Gross benefit to project	29,651	23,506 <u>1/</u>
4. Farm drainage cost		
a. Installation cost	5,720	
b. Maintenance cost	3,980	
c. Total	9,703	7,692 <u>1/</u>
5. Conversion cost		
a. Installation cost	997	
b. Maintenance cost	1,432	
c. Total	2,429	1,926 <u>1/</u>

1/ Discounted for a 10 year lag at 5 % interest.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 3
 State - Kentucky

SUMMARY - TABLE II A
 (Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCTION
 EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		Total
			Unit	Per acre $\frac{1}{2}$	
All	Open land	601			
	Crops:				
	Corn	388	bu.	31	
	Soybeans	31	bu.	16	
	Hay	22	ton	1.2	
	Idle			-	
	Pasture	55	lb.bf.	-	
	Other $\frac{1}{2}$	75		179	
	Forest Land	30			
	Total	33			
		634 $\frac{1}{2}$			

$\frac{1}{1}$ / Farmsteads, farm roads, waste and non-agricultural.
 $\frac{2}{2}$ / Calculated from columns 3 and 6, rounded to nearest unit.
 $\frac{3}{3}$ / Total area, less 48 acres not needing drainage.

Basin - West Ky. Tributaries
Project - Mayfield Creek
Reach - 3
State - Kentucky

SUMMARY - TABLE III A
(Zone for Drainage Calculations Only)
AGRICULTURAL PRODUCTION, VALUE OF FROD
: FUTURE CONDITIONS WITHOUT PROJECT (Ba

1/ Farmsteads, farm roads, waste and non-agricultural.

Calculated from columns 3 and 6, rounded to nearest unit.

Calculated from columns 3 and 10, rounded to nearest cent.

Total area, less 143 acres not needing drainage or non-participation, and 19 acres estimated to remain in woods.

Basin-West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 3
 State - Kentucky

SUMMARY - TABLE IV A
 (Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production			Value of production			Cost of production			Net return	
			Unit	Per acre	2/ Total	Per unit	Total	Per acre	Total	Dollars	Dollars		
All	Open land	520											
Crops:													
Corn	bu.	371	bu.	63	23,255	1•45	33,720	51•11	18,962	14,758			
Soybeans	bu.	30	ton	29	875	2•30	2,013	33•40	1,002	1,011			
Hay		19		2.3	44.5	20.00	890	41.79	794	96			
Idle		0	lb.bf.	~	~	~	~	~	~	~	~		
Pasture		70		~	~	~	~	~	~	~	~		
Other 1/		30		-	-	-	-	-	-	-	-		
Forest Land		0											
Total		520											

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 143 acres not needing drainage or non-participation, and 19 acres estimated to remain in woods.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 3
 State - Kentucky

SUMMARY - TABLE II B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION
EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		
			Unit	Per Acre <u>2/</u>	Total
ALL	Open land	2,955			
	Crops:				
	Corn	1,537	bu.	32	49,672
	Soybeans	18	bu.	10	187
	Hay	146	ton	1.5	212
	<u>Idle</u>				
	Pasture	271	"	"	
	Other 1/	852	lb.bf.	162	138,330
	Forest Land	131	-	-	-
	Total	<u>3,094</u>			
				6,049	

1/ Farmssteads, farm roads, waste and non-agricultural.
 2/ Calculated from columns 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 3
 State - Kentucky

SUMMARY - TABLE III B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return
			Unit	Per acre	2/ Total	Per unit	Total	Per acre	
All	Open land	2,955							
Crops:									
Corn	1,529	bu.	39		59,707	1.45	86,575	33.42	51,103 35,472
Soybeans	17	bu.	16		256	2.30	589	22.59	384 205
Hay	145	ton	1.7		242.2	20.00	4,844	30.86	4,474 370
Idle	255								
Pasture	878	lb.bf.	195		171,463	0.2004	34,361	19.92	17,496 16,865
Other 1/	131		-				13.37	9.680	7.19
Forest Land	724								5,206 4,474
Total	3,679 4/						136,049		78,663 57,386

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 2370 acres to remain in woods because of non-participation in land conversions.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 3
 State - Kentucky

SUMMARY - TABLE IV B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production		Value of production		Cost of production		Net return
			Unit	Per acre	2/ Total	Per unit	Total	Per acre	
All	Open land	3,679							
Crops:									
Corn	2,084	bu.	55		115,288	1.45	167,168	45.49	94,797
Soybeans	364	bu.	28		10,296	2.30	23,681	32.69	11,899
Hay	280	ton	2.2		622.2	20.00	12,444	39.84	11,156
Idle	0								
Pasture	820	lb.bf.	251		205,985	0.2004	11,280	25.21	20,670
Other 1/	131	-	-		-	-	-	-	-
Forest Land	0								
Total	3,679	4/							

1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Calculated from columns 3 and 6, rounded to nearest unit.
 3/ Calculated from columns 3 and 10, rounded to nearest cent.
 4/ Total area of Zone B, Reach 3, less 2370 acres to remain in woods because of non-participation in land conversions.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 3
 State - Kentucky

TABLE V
 REACH 3 SUMMARY BY SOIL MAPPING UNITS

Soil unit	Acres	Future without project (Value of production in dollars)		Future with project (Value of production in dollars)		Difference in Net Value
		Gross	Net	Gross	Net	
<u>ZONE A (Not subject to flooding)</u>						
7	431	21,879	12,434	9,445	37,014	20,615
8	59	1,348	1,069	279	3,585	2,102
Subtotal 2/	<u>490</u>	<u>23,227</u>	<u>13,503</u>	<u>9,724</u>	<u>40,599</u>	<u>22,717</u>
<u>ZONE B (Subject to flooding)</u>						
7	2,418	113,687	64,986	48,701	187,534	105,950
8	1,095	21,894	13,425	8,469	56,035	32,078
14	35	468	252	216	1,004	494
Subtotal 3/	<u>3,548</u>	<u>136,049</u>	<u>78,663</u>	<u>57,386</u>	<u>244,573</u>	<u>138,522</u>
Total	4,038	159,276	92,166	67,110	285,172	161,239
						123,933 56,823

1/ Total area, Reach 3, less acreage in notes 2 and 3 below.

2/ Total area of Zone A reduced by 192 acres not anticipated to receive drainage benefits from project.

3/ Total area of Zones B reduced by 131 acres "other" land and 2370 acres estimated to remain as woodland.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 3
 State - Kentucky

TABLE VI
 LAND CONVERSIONS WITH PROJECT

Type of Conversion 1/	Total amount	Cost of clearing	Cost of smoothing	Cost of Pasture establishment	Total Cost
	Acres	Dollars	Dollars	Dollars	Dollars
<u>Per Acre</u>					
W to GC	-	56	-	-	56
W to P	-	56	-	40	96
P to GC	-	-	-	-	0
X to P	-	-	-	40	40
X to GC	-	-	-	-	0
GC to P	-	-	-	40	40
<u>Reach</u>					
W to GC	610	34,160	-	-	34,160
W to P	131	7,336	-	5,240	12,576
P to GC	408	-	-	-	0
X to P	223	-	-	8,920	8,920
X to GC	66	-	-	-	0
GC to P	0	-	-	-	0
Total Reach 3					55,656
Annual amortized value 2/					3,049
Annual maintenance 3/				2,832	2,832
Total annual cost of conversions					5,881

1/ W—woodland; GC—general crops; P—pasture; X—idle.

2/ Amortized over 50-year period at 5 percent.

3/ Pasture maintenance at \$8.00 per acre per year.

4/ Included in clearing costs.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 3
 State - Kentucky

TABLE VII - SUMMARY
 ANALYSIS OF FARM DRAINAGE SYSTEMS COSTS

Zone/ Soil mapping unit and land use	Area Acres	Total Cost Dollars	Annual equivalent Cost 1/ Dollars	Total annual cost Cost 2/ Dollars	Annual maintenance Cost Dollars	Total annual cost Dollars
		Installation 1/ Dollars	Cost 2/ Dollars	Dollars	Dollars	Dollars
7- Cropland	1,881	44,699	5,788	5,158	10,946	
7- Pasture	402	7,985	1,034	307	1,341	
8- Cropland	623	14,805	1,917	1,708	3,625	
8- Pasture	267	5,303	687	204	891	
14- Pasture	35	695	90	27	117	
Total	3,208	73,487	9,516	7,404	16,920	

1/ Includes engineering and contingency.

2/ Amortized at 5 percent over 10 years. (0.1295)

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 3
 State - Kentucky

TABLE IX
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS
 AND ASSOCIATED COSTS

Item	Total	Discounted amount
	<u>Dollars</u>	<u>Dollars</u>
1. Net return with project	123,933	
2. Net return without project	67,110	
3. Gross benefit to project	56,823	45,046 <u>1/</u>
4. Farm drainage cost		
a. Installation cost	9,516	
b. Maintenance cost	7,404	
c. Total	16,920	13,413 <u>1/</u>
5. Conversion cost		
a. Installation cost	3,049	
b. Maintenance cost	2,832	
c. Total	5,881	4,662 <u>1/</u>

1/ Discounted for a 10 year lag at 5% interest.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 4
 State - Kentucky

SUMMARY - TABLE II A
 (Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCT
 EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		Total
			Unit	Per acre 2/	
All	Open Land	974			
	Crops:				
	Corn	516	bu.	25	13,050
	Soybeans	0	"	-	-
	Hay	118	ton	1.4	167
	Idle				
	Pasture	27	"	-	-
	Other 1/	265	lb.bf.	138	36,563
	Forest Land	48			
		83			
	Total			1,057 3/	

1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Calculated from columns 3 and 6, rounded to nearest unit.
 3/ Total area, less 106 acres not needing drainage.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 4
 State - Kentucky

SUMMARY - TABLE III A
 (Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil Unit	Land use and crop distribution	Acres	Unit	Production		Value of production Per unit	Cost of production Per acre	Total return
				Per acre	Total			
All	Open Land	787						
	Crops:							
	Corn	342	bu.	32	10,822	1.45	15,692	28.33
	Soybeans	0	"	-	-	14.3	4.20	56.45
	Hay	85	ton	1.7	20.00		2,868	31.11
	Idle	20	"	-	-	51,199	0.2004	10,260
	Pasture	292	lb.bf.	175				17.79
	Other 1/	48	"	-	-			
	Forest Land	25	"	-	-			
Total		812 1/				29,098		17,679
								11,419

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area less 293 acres not needing drainage or non-participation and 58 acres estimated to remain in woodland.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 4
 State - Kentucky

SUMMARY - TABLE IV A
 (Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production			Value of production Per unit	Cost of production Per acre	Net return Total
			Unit	Per acre	2/ Total			
All	Open Land	812						
Crops:								
Corn	bu.	495	57	28,035	1.45	40,651	46.44	22,991
Soybeans	bu.	13	25	325	2.30	748	29.69	386
Hay	ton	93	2.4	221	20.00	4,420	42.35	3,939
Idle		0						
Pasture	lb.bf.	163	267	43,558	0.2004	8,730	26.64	4,342
Other 1/		48						
Forest Land		0						
Total		812 <u>4/</u>						
						54,549		31,658
								22,891

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 293 acres not needing drainage or non-participation, and 58 acres estimated to remain in woods.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 4
 State - Kentucky

SUMMARY - TABLE II B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION
 EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		Total
			Unit	Per acre ^{2/}	
All	Open land	3,349			
	Crops:				
	Corn	1,417	bu.	29	41,003
	Soybeans	54	bu.	11	572
	Hay	367	ton	1.2	469
	<u>Idle</u>				
	Pasture	297	-	-	-
	Other 1/	1,014	lb.bf.	151	153,582
	Forest Land	200	-	-	-
		<u>2,646</u>			
	Total	5,995			

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 4
 State - Kentucky

SUMMARY - TABLE III B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production			Value of production Per unit	Cost of production Per acre	Net return
			Unit	Per acre	Total			
All	Open land	3,349						
Crops:								
Corn	bu.	36	46,738	1.45	67,770	31.44	40,776	26,994
Soybeans	bu.	19	1,415	2.30	3,255	24.89	1,892	1,363
Hay	ton	1.3	643.5	20.00	12,870	24.82	12,287	583
Idle		265	-	-	-	-	-	-
Pasture	lb.bf.	1,016	185	-	187,936	0.2004	37,662	18.78
Other 1/		200	-	-	-	-	-	-
Forest Land		548	-	-	-	-	6,083	5.94
Total		3,897 4/					127,640	19,080
							77,300	18,582
								2,818

1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Calculated from columns 3 and 6, rounded to nearest unit.
 3/ Calculated from columns 3 and 10, rounded to nearest cent.
 4/ Total area, less 2098 acres to remain in woods because of non-participation in land conversions.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 4
 State - Kentucky

SUMMARY - TABLE IV B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production			Value of production			Cost of production			Net return
			Unit	Per Acre	Total	Per unit	Total	Per acre	Total	Dollars	Dollars	
All	Open land	3,897										
Crops:												
Corn	bu.	2,057	51	1.45	104,533	1.45	151,573	41.89	86,165	65,408		
Soybeans	bu.	343	26	9,060	9,060	2.30	20,838	31.19	10,699	10,139		
Hay	ton	592	2.0	1,164.6	1,164.6	20.00	23,292	35.69	21,126	2,166		
Idle		0	-	-	-	-	-	-	-	-	-	
Pasture	lb.bf.	705	260	183,485	0.2004	36,771	26.01	18,340	18,431			
Other 1/		200	-	-	-	-	-	-	-	-	-	
Forest Land		0	-	-	-	-	-	-	-	-	-	
Total		3,897	4/							232,474	136,330	96,144

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 2098 acres to remain in woods because of non-participation in land conversions.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 4
 State - Kentucky

TABLE V
 REACH 4 SUMMARY BY SOIL MAPPING UNIT

Soil unit	Acres	Future without project (value of production in dollars)			Future with project (value of production in dollars)			Difference in Net net value
		Gross	Cost	Net	Gross	Cost		
<u>ZONE A (Not subject to flooding)</u>								
7	436	21,143	12,718	8,425	35,115	20,541	14,574	6,149
8	328	7,955	4,961	2,994	19,434	11,117	8,317	5,323
Subtotal 2/	<u>764</u>	<u>29,098</u>	<u>17,679</u>	<u>11,419</u>	<u>54,549</u>	<u>31,658</u>		<u>22,891</u> <u>11,476</u>
<u>ZONE B (Subject to flooding)</u>								
7	1,888	90,743	52,687	38,056	112,585	80,407	62,178	24,122
8	1,796	36,753	21,536	12,217	89,516	55,740	33,776	21,559
14	13	144	77	67	373	183	190	123
Subtotal 3/	<u>3,697</u>	<u>127,640</u>	<u>77,300</u>	<u>50,340</u>	<u>232,474</u>	<u>136,330</u>		<u>96,144</u> <u>45,801</u>
Total 1/	<u>4,461</u>	<u>156,738</u>	<u>94,979</u>	<u>61,759</u>	<u>287,023</u>	<u>167,988</u>	<u>119,035</u>	<u>57,276</u>

1/ Total area, Reach 4, less acreage in notes 2 and 3 below.

2/ Total area of Zone A reduced by 399 acres not anticipated to receive drainage benefits from project.

3/ Total area of Zone B reduced by 200 acres "other" land and 2098 acres estimated to remain in woodland.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 4
 State - Kentucky

TABLE VI
 LAND CONVERSIONS WITH PROJECT

Type of Conversion <u>1/</u>	Total Amount	Cost of clearing	Cost of smoothing	Cost of Pasture establishment	Total cost
	Acres	Dollars	Dollars <u>4/</u>	Dollars	Dollars
<u>Per Acre</u>					
W to GC	-	56	-	-	56
W to P	-	56	-	40	96
P to GC	-	-	-	-	0
X to P	-	-	-	40	40
X to GC	-	-	-	-	0
GC to P	-	-	-	40	40
<u>Reach</u>					
W to GC	352	19,712	-	-	19,712
W to P	227	12,712	-	9,080	21,792
P to GC	741	-	-	-	0
X to P	97	-	-	3,880	3,880
X to GC	180	-	-	-	0
GC to P	0	-	-	-	0
Total Reach 4					45,384
Annual amortized value <u>2/</u>					2,486
Annual maintenance <u>3/</u>				2,592	2,592
Total annual cost of conversions					5,078

1/ W--woodland; GC--general crops; P--pasture; X--idle.

2/ Amortized over 50-year period at 5 percent.

3/ Pasture maintenance at \$8.00 per acre per year.

4/ Included in clearing costs.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 4
 State - Kentucky

TABLE VII - SUMMARY
 ANALYSIS OF FARM DRAINAGE SYSTEMS COSTS

Zone/ Soil mapping unit and land use	Area	Total cost	Annual equivalent cost 2/	Total annual maintenance cost	Dollars
		Installation 1/	Dollars	Dollars	Dollars
7- Cropland	1,428	33,934	4,395	3,916	8,311
7- Pasture	441	8,760	1,135	337	1,472
8- Cropland	1,439	34,196	4,429	3,945	8,374
8 - Pasture	246	4,887	633	188	821
14- Pasture	13	258	33	10	43
Total	3,567	82,035	10,625	8,396	19,021

1/ Includes engineering and contingency.
 $\frac{1}{2}/$ Amortized at 5 percent over 10 years. (0.1295)

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 4
 State - Kentucky

TABLE IX
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS
 AND ASSOCIATED COSTS

Item	Total	Discounted amount
	<u>Dollars</u>	<u>Dollars</u>
1. Net return with project	119,035	
2. Net return without project	61,959	
3. Gross benefit to project	57,276	45,406 <u>1/</u>
4. Farm drainage cost		
a. Installation cost	10,625	
b. Maintenance cost	8,396	
c. Total	19,021	15,079 <u>1/</u>
5. Conversion cost		
a. Installation cost	2,486	
b. Maintenance cost	2,592	
c. Total	5,078	4,026 <u>1/</u>

1/ Discounted for a 10-year lag at 5% interest.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 5
 State - Kentucky

SUMMARY - TABLE II A
 (Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCTION
 EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		Total
			Unit	Per acre 2/	
All	Open Land	655			
	Crops:				
	Corn	397	bu.	25	9,828
	Soybeans	0	"	-	-
	Hay	43	ton	1.3	57
	<u>Idle</u>				
	Pasture	23	"	-	-
	Other 1/	151	lb.bf.	137	20,621
	Forest Land	41			
		132			
	Total	787 3/			

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Total area, less 70 acres not needing drainage.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 5
 State - Kentucky

SUMMARY - TABLE III A
 (Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production			Value of production			Cost of production		
			Unit	Per acre	Total	Per unit	Total	Per acre	Total	Per acre	Total
All	Open land	537									
Crops:											
Corn		252	bu.	30		7,657	1.45		11,102	27.55	
Soybeans		0	"	-		-					
Hay		59	ton	1.6		97.4	20.00		1,948	30.53	
Idle		15	"	-		-					
Pasture		170	lb.bf.	172		29,280	0.2004		5,868	17.44	
Other 1/		41									
Forest Land		48									
Total		585 4/									

- 1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Calculated from columns 3 and 6, rounded to nearest unit.
 3/ Calculated from columns 3 and 10, rounded to nearest cent.
 4/ Total area, less 188 acres not needing drainage or non-participation, and 84 acres estimated to remain in woodland.

Basin - West Kentucky Tributaries
 Project - Mayfield Creek
 Reach - 5
 State - Kentucky

SUMMARY - TABLE IV A
 (Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Unit	Production		Value of production Per unit	Cost of production Per acre	Net return Total
				Per acre	Total			
All	Open land	585						
Crops:								
Corn	bu.	56		20,920	1.45	30,334	46.14	17,164
Soybeans	0	-		-	-	-	-	13,170
Hay	ton	2.4		170.5	20.00	3,410	42.76	3,036
Idle	0							374
Pasture	lb.bf.	264		26,654	0.2004	5,341	26.36	2,662
Other 1/ Forest Land	41	0						2,679
Total		585 4/						39,085
								22,862 16,223

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 188 acres not needing drainage or non-participation and 84 acres estimated to remain in woodland.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 5
 State - Kentucky

SUMMARY - TABLE III B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION
 EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		Total
			Unit	Per acre Σ	
All	Open Land	816			
Crops:					
Corn	482		bu.	29	
Soybeans	30		bu.	3	
Hay	58		ton	1.3	
Idle					
Pasture	69		-	-	
Other $\frac{1}{4}$ /	159		lb.bf.	160	
Forest Land	18		-	-	
	248				
Total		1,064			

1/ Farmsteads, farm roads, waste and non-agricultural.
 Σ / Calculated from columns 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries
Project - Mayfield Creek
Reach ~ 5
State - Kentucky

SUMMARY - TABLE III B
 (Zone for Drainage and Flood Control Calculations)
**COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)**

1/ Farmsteads, farm roads, waste and non-agricultural.

Calculated from columns 3 and 6, rounded to nearest unit.

Total area, less 157 acres to remain in woods because of non-participation in land conversions.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 5
 State - Kentucky

SUMMARY - TABLE IV B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production			Value of production	Cost of production		
			Unit	Per acre	Total		Per unit	Total	Per acre
All	Open land	907					Dollars	Dollars	Dollars
Crops:									
Corn	533	bu.	54		28,743	1.45	41,677	44.37	23,648
Soybeans	112	bu.	26		2,961	2.30	6,810	31.20	3,494
Hay	61	ton	2.1		130.8	20.00	2,616	38.57	2,353
Idle									263
Pasture	182	lb.bf.	242		41,150	0.2004	8,848	25.02	4,553
Other 1/	18		-		-				4,295
Forest Land			0						
Total					907 1/		59,951		
									34,048
									25,903

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 157 acres to remain in woods because of non-participation in land conversions.

Basin - West Ky. Tributaries
Project - Mayfield Creek
Reach - 5
State - Kentucky

TABLE V
REACH 5 SUMMARY BY SOIL MAPPING UNITS

Soil unit	Acres	Future without project (value of production in dollars)		Future with project (value of production in dollars)		Difference in net value
		Gross	Cost	Gross	Cost	
<u>ZONE A - (Not subject to flooding)</u>						
7	305	13,784	8,294	24,783	14,685	10,098
8	239	5,713	3,686	14,302	8,177	6,125
Subtotal 2/	<u>544</u>	<u>19,497</u>	<u>11,980</u>	<u>39,085</u>	<u>22,862</u>	<u>16,223</u>
<u>ZONE B (Subject to flooding)</u>						
7	541	16,448	12,042	42,418	23,852	18,566
8	339	4,948	2,649	17,533	10,083	7,450
11	9	145	51	229	113	116
Subtotal 3/	<u>889</u>	<u>21,441</u>	<u>14,742</u>	<u>60,180</u>	<u>34,048</u>	<u>26,132</u>
Total	1,433 1/	55,680	33,421	22,259	99,265	56,910
						20,096

1/ Total area, Reach 5, less acreage in notes 2 and 3 below.
2/ Total area of Zone A reduced by 31.3 acres not anticipated.

Total area of Zone A reduced by 313 acres not anticipated to receive drainage benefits from project.
Total area of Zone B reduced by 18 acres "other" land, and 157 acres estimated to remain as woodland.

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Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 5
 State - Kentucky

TABLE VI
 LAND CONVERSIONS WITH PROJECT

Type of conversion <u>1/</u>	Total Amount	Cost of clearing	Cost of smoothing	Cost of Pasture establishment	Total cost
	<u>Acres</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>	<u>Dollars</u>
<u>Per Acre</u>					
W to GC	-	56	-	-	56
W to P	-	56	-	40	96
P to GC	-	-	-	-	0
X to P	-	-	-	40	40
X to GC	-	-	-	-	0
GC to P	-	-	-	40	40
<u>Reach</u>					
W to GC	81	4,536	-	-	4,536
W to P	55	3,080	-	2,200	5,280
P to GC	173	-	-	-	0
X to P	35	-	-	1,400	1,400
X to GC	31	-	-	-	0
GC to P	0	-	-	-	0
Total Reach 5					11,216
Annual amortized value <u>2/</u>					614
Annual maintenance <u>3/</u>				720	720
Total annual cost of conversions					1,334

1/ W--woodland; GC--general crops; P--pasture; X--idle.

2/ Amortized over 50-year period at 5 percent.

3/ Pasture maintenance at \$8.00 per acre per year.

4/ Included in clearing costs.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 5
 State - Kentucky

TABLE VII - SUMMARY
 ANALYSIS OF FARM DRAINAGE SYSTEMS COSTS

Zone/ Soil mapping unit and land use	Area	Total cost Installation $\frac{1}{2}$ /	Annual equivalent cost $\frac{2}{2}$	Annual maintenance cost		Total annual cost
				Acres	Dollars	
7 - Cropland	601	14,281	1,849		1,648	3,497
	115	2,285	296		.88	
7 - Pasture						3,384
8 - Cropland	376	8,936	1,157		1,031	2,188
	118	2,343	303		.90	
8 - Pasture						393
114 - Pasture	9	179	23		7	30
Total	1,219	28,024	3,628		2,864	6,492

1/ Includes engineering and contingency.

$\frac{2}{2}$ / Amortized at 5 percent over 10 years. (.01295)

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 5
 State - Kentucky

TABLE IX
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS
 AND ASSOCIATED COSTS

Item	Total	Discounted amount
	Dollars	Dollars
1. Net return with project	42,355	
2. Net return without project	22,259	
3. Gross benefit to project	20,096	15,931 <u>1/</u>
4. Farm drainage cost		
a. Installation cost	3,628	
b. Maintenance cost	2,864	
c. Total	6,492	5,147 <u>1/</u>
5. Conversion cost		
a. Installation cost	614	
b. Maintenance cost	720	
c. Total	1,337	1,060 <u>1/</u>

1/ Discounted for a 10-year lag at 5 percent interest.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - West Fork
 State - Kentucky

SUMMARY - TABLE II A
 (Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCTION
 EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		Total
			Unit	Per acre ^{2/}	
All	Open land	761			
	Crops:				
	Corn	344	bu.	32	11,154
	Soybeans	0	-	-	-
	Hay	57	ton	1.5	85.5
	Idle	1	-	-	-
	Pasture	322	lb.bf.	178	57,422
	Other ^{1/}	37	-	-	-
	Forest Land	251			
	Total	1,012 ^{3/}			

^{1/} Farms, roads, waste and non-agricultural.
^{2/} Calculated from columns 3 and 6, rounded to nearest unit.
^{3/} Total area, less 138 acres not needing drainage.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - West Fork
 State - Kentucky

SUMMARY - TABLE III A

(Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Unit	Production		Value of production		Cost of production		Net return
				Per acre	Total	Per unit	Total	Per acre	Total	
				Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	
All	Open land	497								
Crops:										
Corn	230	bu.	40	9,130	1,45	13,238	33.35	7,670	5,568	
Soybeans	62	bu.	26	1,612	2.30	3,708	30.49	1,890	1,818	
Hay	31	ton	1.8	55.8	20.00	1,116	32.96	1,022	94	
Idle										
Pasture	136	lb.bf.	212		28,891	0.2004	5,790	22.03	2,996	2,794
Other ^{1/}	37		-							
Forest Land	354		-							
Total	851 4/									

^{1/} Farmsteads, farm roads, waste and non-agricultural.

^{2/} Calculated from columns 3 and 6, rounded to nearest unit.

^{3/} Calculated from columns 3 and 10, rounded to nearest cent.

^{4/} Total area, less 238 acres not needing drainage and non-participation and 61 acres estimated to remain in woodland.

SUMMARY - TABLE IV A
 (Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS:
 FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

1/ Farmsteads, farm roads, waste and non-agricultural.

Σ / Calculated from columns 3 and 6, rounded to nearest unit.

Calculated from columns 3 and 10, rounded to nearest cent.

Total area, less 238 acres not needing drainage, and non-participation and 61 acres estimated to remain in woodland.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - West Fork
 State - Kentucky

SUMMARY - TABLE II B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION
EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production			Total
			Unit	Per Acre ^{1/}	2/	
All	Open Land	785				
	Crops:					
	Corn	369	bu.	35		13,054
	Soybeans	107	bu.	20		2,151
	Hay	75	ton	1.6		120
	<u>Total</u>					
	Idle	66				
	Pasture	122				
	Other 1/ Forest Land	46 <u>484</u>	lb.bf.	183		22,278
	Total	1,269				

^{1/} Farmsteads, farm roads, waste and non-agricultural.
^{2/} Calculated from columns 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - West Fork
 State - Kentucky

SUMMARY - TABLE III B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Unit	Production		Value of production	Cost of production	Net return
				Per acre	Total			
				Dollars	Dollars	Dollars	Dollars	Dollars
All	Open land	770						
Crops:								
Corn	439	bu.	44		19,122	1.45	27,727	36.39
Soybeans	55	bu.	27		1,458	2.30	3,353	30.98
Hay	26	ton	1.9		49.4	20.00	988	34.58
Idle				27	mb.bf.	216	38,267	0.2004
Pasture	177		-				7,668	22.16
Other 1/	46		-				12.61	2,724
Forest Land			216					7.00
Total	986	4/					42,460	
								24,015
								18,445

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 283 acres to remain in woods because of non-participation in land conversions.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - West Fork
 State - Kentucky

SUMMARY - TABLE IV B

(Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Unit	Production			Value of production Per unit	Cost of production Per acre	Net return Total
				Per acre	Total	27			
				Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All	Open land	986							
	Crops:								
	Corn	610	bu.	61	36,945	1.45	53,571	49.74	30,340
	Soybeans	121	bu.	29	3,557	2.30	8,181	33.60	4,064
	Hay	25	ton	2.3	58.2	20.00	1,164	41.56	1,039
	Idle	0							
	Pasture	184	1b.bf.	270	49,750	0.2004	9,970	26.90	4,949
	Other	46		-	-	-	-	-	-
	Forest Land	0							
	Total	986	4/						
					72,986				
								40,392	32,494

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 283 acres to remain in woods because of non-participation in land conversions.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - West Fork
 State - Kentucky

TABLE V
 WEST FORK REACH SUMMARY BY SOIL MAPPING UNITS

Soil unit	Acres	Future without project (value of production in dollars)			Future with project (value of production in dollars)			Difference in net value
		Gross	Cost	Net	Gross	Cost	Net	
ZONE A - (Not subject to flooding)								
7	765	27,536	15,560	11,976	59,819	33,468	26,351	14,375
8	149	780	496	284	2,712	1,440	1,272	988
Subtotal	2/	28,316	16,056	12,260	62,531	34,908	27,623	15,363
ZONE B - (Subject to Flooding)								
7	878	41,293	23,344	17,949	69,660	38,510	31,150	13,201
8	62	1,167	671	496	3,226	1,882	1,344	848
Subtotal	2/	42,460	24,015	18,445	72,886	40,392	32,494	14,049
Total	1,754 1/	70,776	40,071	30,705	135,417	75,300	60,117	29,412

1/ Total area West Fork Reach, less acreage in notes 2 and 3 below.
 2/ Total area of Zone A reduced by 336 acres not anticipated to receive drainage benefits from project.
 3/ Total area of Zone B reduced by 46 acres "other" land and 283 acres estimated to remain in woodland.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - West Fork
 State - Kentucky

TABLE VI
 LAND CONVERSION WITH PROJECT

Type of conversion <u>1/</u>	Total Amount	Cost of clearing	Cost of smoothing	Cost of Pasture establishment	Total cost
	Acres	Dollars	Dollars	Dollars	Dollars
<u>Per Acre</u>					
W to GC	-	56	-	-	56
W to P	-	56	-	40	96
P to GC	-	-	-	-	0
X to P	-	-	-	40	40
X to GC	-	-	-	-	0
GC to P	-	-	-	40	40
<u>West Fork</u>					
W to GC	462	25,872	-	-	25,872
W to P	169	9,464	-	6,760	16,224
P to GC	119	-	-	-	0
X to P	26	-	-	1,040	1,040
X to GC	2	-	-	-	0
GC to P	0	-	-	-	0
Total West Fork Reach					43,136
Annual amortized value <u>2/</u>					2,363
Annual maintenance <u>3/</u>				1,560	1,560
Total annual cost of conversions					3,923

1/ W--woodland; GC--general crops; P--pasture; X--idle.

2/ Amortized over 50-year period at 5 percent.

3/ Pasture maintenance of \$8.00 per acre per year.

4/ Included in clearing costs.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - West Fork
 State - Kentucky

TABLE VII - SUMMARY
 ANALYSIS OF FARM DRAINAGE SYSTEMS COSTS

Zone/Soil mapping unit and land use	Area	Total cost Installation 1/ cost 2/	Annual equivalent, cost 2/	Annual maintenance cost	Total annual cost
	Acres	Dollars	Dollars	Dollars	Dollars
7 - Cropland	1,184	28,137	3,643	3,247	6,890
7 - Pasture	290	5,760	746	222	968
8 - Cropland	53	1,260	163	145	308
8 - Pasture	44	874	113	34	147
Total	1,571	36,031	4,665	3,648	8,313

1/ Includes engineering and contingency.
 2/ Amortized at 5 percent over 10 years. (0.1295)

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - West Fork
 State - Kentucky

TABLE IX
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS
 AND ASSOCIATED COSTS

Item	Total	Discounted Amount
	<u>Dollars</u>	<u>Dollars</u>
1. Net return with project	60,117	
2. Net return without project	30,705	
3. Gross benefit to project	29,412	23,316 <u>1/</u>
4. Farm drainage cost		
a. Installation cost	4,665	
b. Maintenance cost	3,648	
c. Total	8,313	6,590 <u>1/</u>
5. Conversion cost		
a. Installation cost	2,363	
b. Maintenance cost	1,560	
c. Total	3,923	3,110 <u>1/</u>

1/ Discounted for 10 year lag at 5 percent interest.

Basin - West Ky. Tributaries
Project - Mayfield Creek
Reach - Wilson
State - Kentucky

SUMMARY - TABLE II A
(Zone for Drainage Calculations Only)
COMPUTATION OF AGRICULTURAL PRODUCTION
EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		Total
			Unit	Per acre 2/	
All	Open land	472			
	Crops:				
	Corn	193	bu.	31	
	Soybeans	44	bu.	14	
	Hay	49	ton	1.6	
	<u>Idle</u>				
	Pasture	52	"	"	
	Other 1/	106	lb.bf.	167	
	Forest Land	28	"	"	
	Total	73			
					545 2/

1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Calculated from columns 3 and 6, rounded to nearest unit.
 3/ Total area, less 72 acres not needing drainage.

Basin - West Ky. Tributaries
Project - Mayfield Creek
Reach - Wilson
State - Kentucky

SUMMARY - TABLE III A
(Zone for Drainage Calculations Only)
**COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)**

Page 57

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - Wilson
 State - Kentucky

SUMMARY - TABLE. IV A
 (Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Unit	Production			Value of production Per acre	Cost of production Per acre	Net return Total	
				2/	Total	Per unit				
						Total	Per acre	2/		
							Dollars	Dollars	Dollars	Dollars
All	Open land	400								
	Crops:									
	Corn	281	b.u.	62	17,345	1.45	25,151	50.38	14,156	10,995
	Soybeans	17	b.u.	29	485	2.30	1,116	32.82	558	558
	Hay	0	-	-	-	-	-	-	-	-
	<u>Idle</u>	16	-	-	-	-	-	-	-	-
	Pasture	58	lb.bf.	279	16,156	0.0004	3,237	27.57	1,599	1,638
	Other 1/	28	-	-	-	-	-	-	-	-
	Forest Land	0								
	Total	400	4/							
Page							29,504		16,313	13,191

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 160 acres not needing drainage or non-participation, and 57 acres estimated to remain in woodland.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - Wilson
 State - Kentucky

SUMMARY - TABLE II B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION
EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acre	Production		Total
			Unit	Per acre ^{1/}	
All	Open land	298			
	Crops:				
	Corn	136	bu.	34	
	Soybeans	37	bu.	20.	
	Hay	27	ton	1.6	
					43
	Idle	12			
	Pasture	70			
	Other 1/ Forest Land	16	lb.bf.	177	
		90			
	Total	388			12,372

^{1/} Farms, roads, waste and non-agricultural.
^{2/} Calculated from columns 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - Wilson
 State - Kentucky

SUMMARY - TABLE III B
 (Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Unit	Production		Value of production		Cost of production		Net return
				Per acre	Total	Per unit	Total	Per acre	Total	
All	Open land Corps:	288						Dollars	Dollars	Dollars
Corn	85	bu.	41	3,476	1.45	5,041	34.64	2,944	2,097	
Soybeans	45	bu.	27	1,193	2.30	2,744	31.00	1,395	1,349	
Hay	30	ton	1.8	54	20.00	1,080	32.96	989	91	
<u>Idle</u>	<u>13</u>									
Pasture	99	lb.bf.	217	21,485	0.2004	4,306	22.25	-	-	2,103
Other 1/	16	-	-	-	-	-	-	-	-	-
Forest Land	42					11.64	1489	6.32	265	224
Total	330	4/					13,660			7,796 5,864

- 1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Calculated from columns 3 and 6, rounded to nearest unit.
 3/ Calculated from columns 3 and 10, rounded to nearest cent.
 4/ Total area, less 58 acres to remain in woods because of non-participation in land conversions.

Basin - West Ky. Tributaries
Project - Mayfield Creek
Reach - Wilson
State - Kentucky

SUMMARY - TABLE IV B
(Zone for Drainage and Flood Control Calculations)
**COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)**

11/ Farmsteads, farm roads, waste and non-agricultural.

Calculated from columns 3 and 6, rounded to nearest unit.

Li/ Total area, less 58 acres to remain in woods because of non-participation in land conversions.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - Wilson
 State - Kentucky.

TABLE V
 WILSON REACH SUMMARY BY SOIL MAPPING UNITS

Soil unit	Acres	Future without project (value of production in dollars)			Future with project (value of production in dollars)			Difference in net value
		Gross	Net	Gross	Net			
<u>ZONE A (Not subject to flooding)</u>								
7	308	12,486	7,319	5,167	25,613	14,139	11,474	6,307
8	64	1,457	1,044	413	3,891	2,174	1,717	1,304
Subtotal 2/	<u>372</u>	<u>13,943</u>	<u>8,363</u>	<u>5,580</u>	<u>29,504</u>	<u>16,313</u>	<u>13,191</u>	<u>7,611</u>
<u>ZONE B - (Subject to flooding)</u>								
7	268	12,972	7,381	5,591	20,362	11,397	8,965	3,374
8	16	688	415	273	2,095	1,193	902	629
Subtotal 3/	<u>314</u>	<u>13,660</u>	<u>7,796</u>	<u>5,864</u>	<u>22,457</u>	<u>12,590</u>	<u>9,867</u>	<u>4,003</u>
Total	686 <u>1/</u>	27,603	16,159	11,444	51,961	28,903	23,058	11,614

1/ Total area of Wilson Reach, less acreage in notes 2 and 3 below.

2/ Total area of Zone A reduced by 245 acres not anticipated to receive drainage benefits from project.

3/ Total area of Zone B reduced by 16 acres "other" land and 58 acres estimated to remain as woodland.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - Wilson
 State - Kentucky

TABLE VI
 LAND CONVERSIONS WITH PROJECT

Type of Conversion <u>1/</u>	Total Amount	Cost of clearing	Cost of smoothing <u>4/</u>	Cost of pasture establishment	Total Cost
	Acres	Dollars	Dollars <u>4/</u>	Dollars	Dollars
<u>Per Acre</u>					
W to GC	-	56	-	-	56
W to P	-	56	-	40	96
P to GC	-	-	-	-	0
X to P	-	-	-	40	40
X to GC	-	-	-	-	0
GC to P	-	-	-	40	40
<u>Wilson Creek</u>					
W to GC	58	3,248	-	-	3,248
W to P	3	168	-	120	288
P to GC	68	0	-	-	0
X to P	7	-	-	280	280
X to GC	39	-	-	-	0
GC to P	-	-	-	-	0
Total Wilson Creek Reach					3,816
Annual amortized value <u>2/</u>					209
Annual maintenance <u>3/</u>				80	80
Total annual cost of conversions					289

1/ W—woodland; GC—general crops; P—pasture; X—idle.

2/ Amortized over 50-year period at 5 percent.

3/ Pasture maintenance at \$8.00 per acre per year.

4/ Included in clearing costs.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - Wilson
 State - Kentucky

TABLE VII - SUMMARY
 ANALYSIS OF FARM DRAINAGE SYSTEMS COSTS

Zone/Soil mapping unit and land use	Area	Total	Annual	Total annual cost
		cost	equivalent cost 2/ cost 1/	
		Acres	Dollars	Dollars
7- Cropland	411	9,767	1,265	1,127
	100	1,987	257	76
7- Pasture				2,392
				333
8- Cropland	78	1,854	240	214
	22	437	57	17
8- Pasture				454
				74
Total	611	14,045	1,819	1,434
				3,253

^{1/} Includes engineering and contingency.
^{2/} Amortized at 5 percent over 10 years. (0.1295)

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - Wilson
 State - Kentucky

TABLE IX
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS
 AND ASSOCIATED COSTS

Item	Total	Discounted amount
	<u>Dollars</u>	<u>Dollars</u>
1. Net return with project	23,058	
2. Net return without project	11,444	
3. Gross benefit to project	11,614	9,207 <u>1/</u>
4. Farm drainage cost		
a. Installation cost	1,819	
b. Maintenance cost	1,434	
c. Total	3,253	2,579 <u>1/</u>
5. Conversion cost		
a. Installation cost	209	
b. Maintenance cost	80	
c. Total	289	229 <u>1/</u>

1/ Discounted for a 10-year lag at 5 percent interest.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 1
 State - Kentucky

SUMMARY - TABLE II C
 (Zone of No Project Benefit)
 COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		Total
			Unit	Per acre 2/	
All	Open land	3,544			
	Crops :				
	Corn	1,571	bush.	43	67,934
	Soybeans	509	bush.	23	11,912
	Hay	375	ton	1.5	561
	Idle				
	Pasture	484		-	-
	Other 1/	379	lb.bf.	164	62,009
	Forest Land	226	-	-	-
	Total	6,952			
					10,496

1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Calculated from columns 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 1
 State - Kentucky

SUMMARY - TABLE III C
 (Zone of No Project Benefit)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production			Value of production			Cost of production			Net return
			Unit	Per acre	Total	Per unit	Total	Per acre	Total	Dollars	Dollars	
All	Open land	4,670										
Crops:												
Corn	bu.	49			109,674	1.45		159,027	40.93	90,866	68,161	
Soybeans	bu.	29			32,725	2.30		75,267	34.79	39,800	35,467	
Hay	ton	1.7			470.6	20.00		9,412	32.04	8,650	762	
Idle												
Pasture	lb.bf.	197			83,789	0.2004		16,791	20.28	8,620	8,171	
Other 1/	-	-			-	-		-	-	-	-	
Forest Land												
Total		10,496										

1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Calculated from columns 3 and 6, rounded to nearest unit.
 3/ Calculated from columns 3 and 10, rounded to nearest cent.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 1
 State - Kentucky

TABLE V
 REACH 1 SUMMARY BY SOIL MAPPING UNITS

Soil unit	Acres	Future without project (value of production in dollars)		Future with project 2/ (value of production in dollars)		Difference in net value
		Gross	Cost	Gross	Cost	
ZONE C -(Subject to flooding)						
5	1,354	102,651	59,589	102,651	59,589	43,062
6	2,550	109,430	58,845	109,430	58,845	50,585
7	1,852	64,910	37,127	64,910	37,127	27,783
8	3,967	57,357	33,333	57,357	33,333	24,024
9	106	4,390	2,696	1,694	4,390	1,694
10	102	2,745	1,835	910	2,745	910
11	24	1,219	705	514	1,219	514
12	38	267	150	117	267	117
13	277	4,101	2,305	1,796	4,101	2,305
Total	10,270	1/ 347,070	196,585	150,485	347,070	196,585
						150,485
						0

1/ Total area of Zone C reduced by $\frac{246}{2}$ acres "other" land.

2/ Zone C is assumed to be the same as future conditions without project.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 5
 State - Kentucky

SUMMARY - TABLE II C
 (Zone of No Project Benefit)
 COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		Total
			Unit	Per acre 2/	
All	Open Land	2,289			
	Crops:				
	Corn	1,523	bu.	31	
	Soybeans	79	bu.	17	
	Hay	104	ton	1.4	
	Total				
	Pasture	125	"	"	
	Other 1/	363	lb.bf.	167	
	Forest Land	95	"	"	
		460			
	Total				
		2,749			

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach - 5
 State - Kentucky

SUMMARY - TABLE III C
 (Zone of No Project Benefit)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Unit	Production			Value of production	Cost of production	Net return
				Per acre	2/ Total	Per unit			
				Dollars	Dollars	Dollars	3/		
All	Open land	2,314							
Crops:									
Corn	1,467 bu.	39		56,822	1.45	82,392	32.75	48,041	34,351
Soybeans	94 bu.	24		2,224	2.30	5,115	28.69	2,697	2,418
Hay	101 ton	1.5		160.2	20.00	3,204	29.47	2,977	227
Idle	80	-	-	-	-	-	-	-	-
Pasture	477 lb.bf.	199		95,049	0.2004	19,048	20.53	9,791	9,257
Other 1/	95	-	-	-	-	-	-	-	-
Forest Land	435	-	-	-	-	-	-	-	-
Total	2,749			115,006				65,972	49,034

1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Calculated from columns 3 and 6, rounded to nearest unit.
 3/ Calculated from columns 3 and 10, rounded to nearest cent.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 Reach 5, Zone C
 State - Kentucky

TABLE V
 REACH 5 - ZONE C SUMMARY BY SOIL MAPPING UNITS

Soil unit	Acres	Future without project (value of production in dollars)		Future with project 2/ (value of production in dollars)		Difference in net value
		Gross	Net	Gross	Net	
<u>ZONE C - (Subject to flooding)</u>						
7	2,246	106,538	46,031	106,538	60,507	46,031
8	408	8,468	5,465	8,468	5,464	3,003
Total	2,654	115,006	65,972	49,034	115,006	65,972
					49,034	0

1/ Total area of Zone C reduced by 95 acres "other" land.

2/ Zone C is assumed to be the same as future conditions without project.

Basin - West Ky. Tributaries
 Project - Mayfield Creek
 State - Kentucky

TABLE V
 PROJECT AREA SUMMARY

Reach 1/	Acres	Future without project (value of production in dollars)		Future with project (value of production in dollars)		Difference in net value
		Gross	Net	Gross	Cost	
Reach 1	10,270	347,070	196,585	347,070	196,585	150,485
2	2,435	93,810	53,710	40,100	158,074	69,751
3	4,038	159,276	92,166	67,110	285,172	123,933
4	4,461	156,738	94,979	61,759	287,023	119,035
5	1,433	55,680	33,421	22,259	99,265	42,355
West Fork Reach 1	754	70,776	40,071	30,705	135,417	75,300
Wilson Ck. Reach	686	27,603	16,159	11,444	51,961	28,903
Zone C, Reach 5	2,654	115,006	65,972	49,034	115,006	65,972
Total	2/	27,731	1,025,959	593,063	432,896	1,178,988
					841,220	637,768
						204,872

1/ Reach 2, 3, 4, 5, Wilson, and West Fork contain both A and B Zones.

2/ Total area of A Zones reduced by 1,801 acres not anticipated to receive drainage benefits from project, and total area of Zones B and C reduced by 829 acres "other" land and 7,424 acres estimated to remain as woodland.

3/ Includes Zone C which is assumed to be the same as future conditions without project.

OBION CREEK
Portion of
WEST KENTUCKY TRIBUTARIES
of
MR & T STUDY

SUMMARY TABLES

Basin - West Ky. Tributaries
 Project ~ Obion Creek
 State ~ Kentucky

TABLE I
 Existing Land Use By Soil Mapping Units

Zone C - No Project Benefits (Reach 1)			
Soil mapping unit	Open (Acres)	Wooded (Acres)	Total (Acres)
1	506	3,344	3,850
2	647	81	728
5	1,214	808	2,022
6	234	1,588	1,822
7	1,416	347	1,763
8	851	2,969	3,820
9	223	28	251
10	411	45	456
11	243	588	831
13	10		10
Subtotal-all soils	5,755	9,798	15,553
Water			412
<u>Total - Zone C, Reach 1</u>	<u>5,755</u>	<u>9,798</u>	<u>15,965</u>
Zone B - Drainage and Flood Control Calculations (Reach 2)			
7	2,460	1,555	4,015
8	488	5,233	5,721
14	6	867	873
Subtotal - all soils	2,954	7,655	10,609
Water			247
<u>Total - Zone B</u>	<u>2,954</u>	<u>7,655</u>	<u>10,856</u>
Zone A - Drainage Calculations Only (Reach 2)			
7	1,725	723	2,448
8	343	593	936
14		9	9
Subtotal - all soils	2,068	1,325	3,393
Water			5
<u>Total - Zone A</u>	<u>2,068</u>	<u>1,325</u>	<u>3,398</u>
Zone C - No Project Benefits (Reach 2)			
7	1,173	251	1,424
8	222	110	332
13	8	59	67
14	3	3	6
Subtotal - all soils	1,406	423	1,829
Water			39
<u>Total - Zone C -Reach 2</u>	<u>1,406</u>	<u>423</u>	<u>1,868</u>
<u>TOTAL PROJECT</u>	<u>12,183</u>	<u>19,201</u>	<u>32,087*</u>

*Includes 703 Ac. Water

Basin - West Ky. Tributaries
 Project - Obion Creek
 Reach - 2
 State - Kentucky

SUMMARY - TABLE II A
 (Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCTION
EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		Total
			Unit	Per acre 2/	
All	Open land	1,961			
	Crops:				
	Corn	950	bu.	32	30,666
	Soybeans	134	bu.	14	1,880
	Hay	75	ton	1.2	90
	Idle				
	Pasture	367	-	-	-
	Other 1/	332	lb. bf.	174	57,844
	Forest land	103	-	-	-
	Total	1,289			
					3,250 3/

1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Calculated from columns 3 and 6, and rounded to nearest unit.
 3/ Total area, less 148 acres not needing drainage.

**Basin - West Ky. Tributaries
Project - Obion Creek : COMI
Reach - 2 AND
State - Kentucky**

SUMMARY - TABLE III A
 (Zone for Drainage Calculations Only)
**AGRICULTURAL PRODUCTION, VALUE OF PRODUCT
 FUTURE CONDITIONS WITHOUT PROJECT (B)**

Soil unit	Land use and crop distribution	Production			Value		Cost		Net return
		Acres	Unit	Per acre	Total	Per unit	Total	Per acre	
All	Open land	1,426							
Crops:									
Corn	782	bu.	40	31,312	1.45	45,402	33.56	26,246	19,156
Soybeans	104	bu.	20	2,110	2.30	4,853	26.10	2,715	2,138
Hay	61	ton	1.3	81.6	20.00	1,636	25.49	1,555	81
Idle									
Pasture	104	-	-	-	-	57,001	0.2004	11,423	21.70
Other 1/ Forest Land	272	lb.bf.	210	-	-	-	-	5,904	5,519
	103	-	-			8.15	3,097	4.71	1,789
	380								1,308
Total		1,806	4/					38,209	28,202

1/ Farmsteads, farm roads, waste and non-agricultural.

Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

T/ Total area, less 647 acres not needing drainage or non-participation in drainage and 945 acres estimated to remain in woods due to non-participation in land conversions.

Basin - West Ky, Tributaries
 Project - Obion Creek
 Reach - 2
 State - Kentucky

SUMMARY - TABLE IV A
 (Zone for Drainage Calculations only)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Unit	Production			Value of production per unit	Value of production per acre	Net return
				Per acre	2/ Total	3/ Total			
All	Open land	1,806							
Crops:									
Corn	1,077	bu.	64	68,905	1.45		99,912	52.11	56,125
Soybeans	174	bu.	27	4,685	2.30		10,775	31.41	5,309
Hay	110	ton	2.2	2,375	20.00		1,750	38.81	4,269
Idle									
Pasture	312	lb.bf.	277						
Other 1/	103	"	"						
Forest Land			0						
Total				1,806	4/				

Page 4

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from columns 3 and 6, rounded to nearest unit.

3/ Calculated from columns 3 and 10, rounded to nearest cent.

4/ Total area, less 647 acres not needing drainage or non-participation in drainage and 945 acres estimated to remain in woods due to non-participation in land conversions.

Basin - West Ky. Tributaries
Project - Obion Creek
Reach - 2
State - Kentucky

SUMMARY - TABLE II B
(Zone for Drainage and Flood Control Calculations)
COMPUTATION OF AGRICULTURAL PRODUCTION
EXISTING CONDITIONS

Soil Unit	Land use, ^{1/} and crop distribution	Acres	Unit	Production	
				Per Acre	Total
All	Open land	3,201			
	Crops:				
	Corn	691	bu.	33	23,045
	Soybeans	248	bu.	20	4,985
	Hay	148	ton	1.6	237
	Tale				
	Pasture	342	-	-	265,215
	Other 1/ ^{2/}	1,525	lb.bf.	173	
	Forest Land	247	-	-	
	Total	7,655			
		10,856			

^{1/} Farmsteads, farm roads, waste and non-agricultural.
^{2/} Calculated from 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries
 Project - Cbion Creek
 Reach - 2
 State - Kentucky

SUMMARY - TABLE III B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil Unit	Land use and crop distribution	Acres	Unit	Production			Value of production Per unit	Cost of production Per acre	Net return Total
				Per acre	Total	Per unit			
All	Open land	3,201					Dollars	Dollars	Dollars
	Crops:								
	Corn	684	bu.	40	27,191	1.45	39,427	33.87	23,167
	Soybeans	240	bu.	27	6,360	2.30	14,628	29.60	7,222
	Hay	156	ton	1.8	277	20.00	5,424	31.96	4,985
	Idle	326	"	"	318,258	0.2004	63,779	21.07	32,624
	Pasture	1,548	lb.bf.	206					31,155
	Other 1/	247	"	"					
	Forest Land	1,317					11.50	15.146	5.82
	Total	4,518 2/					138,404		75,663
									62,741

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Total B Zone, less 6338 acres to remain in woods because of non-participation in land conversion.

3/ Calculated from columns 3 and 6, rounded to nearest unit.

4/ Calculated from columns 3 and 10, rounded to nearest cent.

Basin - West Ky. Tributaries
 Project - Obion Creek
 Reach - 2
 State - Kentucky

SUMMARY - TABLE IV B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production	Value			Cost
				Per acre	3/ Total	Per unit	
						Total	Per acre
				Dollars	Dollars	Dollars	Dollars
							4/
All	Open Land	4,518					
Crops:							
Corn	bu.	53	134,364	1.45	194,828	43.40	110,669
Soybeans	bu.	29	16,461	2.30	37,860	33.02	18,921
Hay	ton	2.3	1,454	20.00	29,076	40.70	26,010
Idle		0	-	-	-	-	-
Pasture	lb.bf.	220	112,157	0.2004	22,476	21.98	11,188
Other 1/		247	-	-	-	-	-
Forest Land		0					
Total		4,518 2/			284,240	284,240	166,788 117,452

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Total, less 6338 acres to remain in woods because of non-participation in land conversions.

3/ Calculated from columns 3 and 6, rounded to nearest unit.

4/ Calculated from columns 3 and 10, rounded to nearest cent.

Basin - West Ky. Tributaries
 Project - Obion Creek
 Reach - 2
 State - Kentucky

SUMMARY - TABLE II C
 (Zone of No Project Benefit)
 COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		Total
			Unit	Per acre ^{2/}	
All	Open land	1,445			
Crops:					
Corn	712		bu.	30	21,534
Soybeans	87		bu.	19	1,653
Hay	50		ton	1.4	68.5
Idle					
Pasture	405		-	-	
Other ^{1/}	152		lb.bf.	160	24,328
Forest Land	39		-	-	-
	423				
Total		1,868			

^{1/} Farmsteads, farm roads, waste and non-agricultural.
^{2/} Calculated from columns 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries
 Project - Obion Creek
 Reach - 2
 State - Kentucky

SUMMARY - TABLE III C
 (Zone of No Project Benefit)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION,
 COSTS, AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on
 projected prices)

Soil unit	Land use distribution	Acres	Unit	Per acre ² / ₂	Total	Per unit	Total	Per acre	Total	Net return		
										Dollars	Dollars	Dollars
All	Open land	1,495								<u>27</u>		
	Crops:											
	Corn	432	b <u>u.</u>	36	15,712	1.45	22,782	31.28	13,511		9,271	
	Soybeans	97	b <u>u.</u>	25	2,412	2.30	5,548	29.62	2,873		2,675	
	Hay	92	ton	1.6	148.0	20.00	2,960	29.84	2,746		214	
	Tale	405	-	-	-	-	-	-	-			
	Pasture	430	lb.bf.	204	87,760	0.2004	17,587	21.08	9,064		8,523	
	Other ^{1/}	29	-	-	-	-	-	-	-			
	Forest Land	373				15.49	5,778	8.88	3,313		2,465	
	Total	1,868					54,655		31,507		23,148	

^{1/} Farmsteads, farm roads, waste and non-agricultural.

^{2/} Calculated from columns 3 and 6, rounded to nearest unit.

^{3/} Calculated from columns 3 and 10, rounded to nearest cent.

Basin - West Ky. Tributaries
Project - Obion Creek
Reach - 2
State - Kentucky

TABLE V
REACH 2 SUMMARY BY SOIL MAPPING UNITS

Soil unit	Acres	Future without project (Value of production in dollars)			Future with project 1/ (value of production in dollars)			Difference in net value
		Gross	Cost	Net	Gross	Cost	Net	
7	1,470	62,029	35,156	26,873	117,656	65,266	52,390	25,517
8	336	4,382	3,053	1,329	16,799	9,995	6,804	5,475
14	0	-	-	-	-	-	-	0
Subtotal 2/	1,806	66,411	38,209	28,202	134,455	75,261	59,194	30,992
 ZONES B AND C - (Subject to Flooding)								
7	4,305	162,316	90,043	72,273	255,593	149,267	106,326	34,053
8	1,813	27,861	15,604	12,257	77,383	46,038	31,345	19,088
13	69	914	524	390	914	524	390	0
14	199	1,2968	999	969	5,005	2,466	2,539	1,570
Subtotal 3/	6,386	193,059	107,170	85,889	338,895	198,295	140,600	54,711
Total	8,192	259,470	145,379	114,091	473,350	273,556	199,794	85,703

Basin - West Ky. Tributaries
 Project - Obion Creek
 Reach -1
 State - Kentucky

SUMMARY - TABLE II C
 (Zone of No Project Benefits)
 COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		Total
			Unit	Per acre <u>2/</u>	
All	Open Land	6,167			
	Crops:				
	Corn	2,845	bu.	43	121,772
	Soybeans	1,652	bu.	20	32,690
	Hay	198	ton	1.2	236
	<u>Idle</u>				
	Pasture	550		-	
	Other ^{1/}	638	lb.bf.	150	95,842
	Forest land	412	-	-	
	Total	<u>9,798</u>			
		15,965			

^{1/} Farmssteads, farm roads, waste and non-agricultural.
^{2/} Calculated from columns 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries
 Project - Obion Creek
 Reach - 1
 State - Kentucky

SUMMARY - TABLE III C
 (Zone of No Project Benefit)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production			Value of production			Cost of production			Net return
			Unit	Per acre ²	Total	Per unit	Total	Per acre	Total	Per acre	Total	
					Dollars		Dollars	Dollars	Dollars	Dollars	Dollars	
All	Open land	7,101										
Crops:												
Corn	3,317	bu.	53		176,201	1.45	255,491	43.90	145,604	109,887		
Soybeans	1,767	bu.	26		46,787	2.30	107,612	31.27	55,253	52,359		
Hay	106	ton	1.75		180.2	20.00	3,604	31.34	3,322	282		
Idle												
Pasture	1,489	lb.bf.	169		251,246	0.2004	50,350	17.03	25,362	24,988		
Other 1/	412	q	-									
Forest Land	8,864						8.77	77,737	5.00	44,320	33,417	
Total	15,965							494,794		273,861	220,933	

1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Calculated from columns 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries
 Project - Obion Creek
 Reach - 1
 State - Kentucky

TABLE V
 REACH 1 SUMMARY BY SOIL MAPPING UNITS

Soil Unit	Acres	Future without project (value of production in dollars)		Future with project <u>1/</u> (value of production in dollars)		Difference in net value
		Gross	Net	Gross	Net	
ZONE C - (Subject to flooding)						
1	3,953	70,400	36,860	33,540	70,400	36,860
2	749	54,982	30,441	24,541	54,982	30,441
5	2,076	155,591	87,602	67,989	155,591	87,602
6	1,871	29,465	16,225	13,240	29,465	16,225
7	1,808	82,240	45,746	36,494	82,240	45,746
8	3,919	50,465	28,100	22,365	50,465	28,100
9	259	9,110	4,773	4,337	9,110	4,337
10	468	14,268	7,946	6,322	14,268	7,946
11	852	28,274	16,168	12,106	28,274	16,168
13	10	0	0	0	0	0
Total	15,965	494,795	273,861	220,934	494,795	273,861
					220,934	0

1/ Zone C is assumed to be the same as future conditions without project.

Basin - West Ky. Tributaries
 Project - Obion Creek
 State - Kentucky

TABLE V
 PROJECT AREA SUMMARY BY SOIL MAPPING UNITS

Zone and Soil Unit	Acres	Future without Project (value of production in dollars)			Future with Project (value of production in dollars)			Difference in net value
		Gross	Cost	Net	Gross	Cost	Net	
7	1,470	62,029	35,156	26,873	117,656	65,266	52,390	25,517
8	336	4,382	3,053	1,329	16,799	9,995	6,804	5,475
14	0	-	-	-	-	-	-	-
Subtotal	1,806 2/	66,411	38,209	28,202	134,455	75,261	59,194	30,992
ZONES B AND C -(Subject to Flooding)								
1	3,953	70,400	36,860	33,540	70,400	36,860	33,540	0
2	749	54,982	30,441	24,541	54,982	30,441	24,541	0
5	2,076	155,591	87,602	67,989	155,591	87,602	67,989	0
6	1,871	29,465	16,225	13,240	29,465	16,225	13,240	0
7	6,113	244,556	135,789	108,767	337,833	195,013	142,820	34,053
8	5,732	78,326	43,704	34,622	127,848	74,138	53,710	19,088
9	259	9,110	4,773	4,337	9,110	4,773	4,337	0
10	468	14,268	7,946	6,322	14,268	7,946	6,322	0
11	852	28,274	16,168	12,106	28,274	16,168	12,106	0
13	79	911	524	390	914	524	390	0
14	199	1,968	999	969	5,005	2,466	2,539	1,570
Subtotal	22,351 3/	687,854	381,031	306,823	833,690	472,156	361,534	54,711
Total	24,157	754,265	419,240	335,025	968,145	547,417	402,728	85,703

1/ Includes Zone C which is assumed to be the same as future without project.
 2/ Total area of Zone A, reduced by 1592 acres not anticipated to receive drainage benefits from project.
 3/ Total area of Zones B and C, reduced by 6338 acres estimated to remain in woodland.

Basin - West Ky. Tributaries
Project - Obion Creek
State - Kentucky

TABLE VI
LAND CONVERSIONS WITH PROJECT

Type of conversion <u>1/</u>	Total Amount	Cost of clearing	Cost of smoothing	Cost of Pasture establishment	Total cost
	Acres	Dollars	Dollars	Dollars	Dollars
<u>3/</u>					
Per Acre					
W to GC	-	56	-	-	56
W to P	-	56	-	40	96
P to GC	-	-	-	-	0
X to P	-	-	-	40	40
X to GC	-	-	-	-	0
GC to P	-	-	-	40	40
Project					
W to GC	1,442	80,752	-	-	80,752
W to P	326	18,256	-	13,040	31,296
P to GC	1,308	-	-	-	-
X to P	69	-	-	2,760	2,760
X to GC	361	-	-	-	-
GC to P	0	-	-	-	-
Total project					114,808
Annual amortized value <u>2/</u>					6,289
Annual maintenance <u>4/</u>	-	-	-	3,160	3,160
Total annual cost of conversions	-	-	-	-	9,449

1/ W--woodland; GC--general crops; P--pasture; X--idle.

2/ Amortized over 50-year period at 5 percent.

3/ Included in cost of clearing.

4/ Pasture maintenance, \$6.00 per acre per year.

Basin - West Ky. Tributaries
 Project - Obion Creek
 State - Kentucky

TABLE VII
 ANALYSIS OF FARM DRAINAGE SYSTEMS COSTS

Soil mapping unit and land use	Area	Total	Annual	Annual maintenance cost	Total annual cost
		cost Installation 1/	equivalent cost 2/		
		Acres	Dollars	Dollars	Dollars
7- Cropland	3,054	72,575	9,399	8,374	17,773
7- Pasture	436	8,661	1,122	333	1,455
8- Cropland	1,199	28,493	3,690	3,288	6,978
8- Pasture	163	3,238	419	124	543
14- Pasture	173	3,436	445	132	577
Total		5,025 3/ 116,403	15,075	12,251	27,326

1/ Includes engineering and contingency.

2/ Amortized at 5 percent over 10 years.

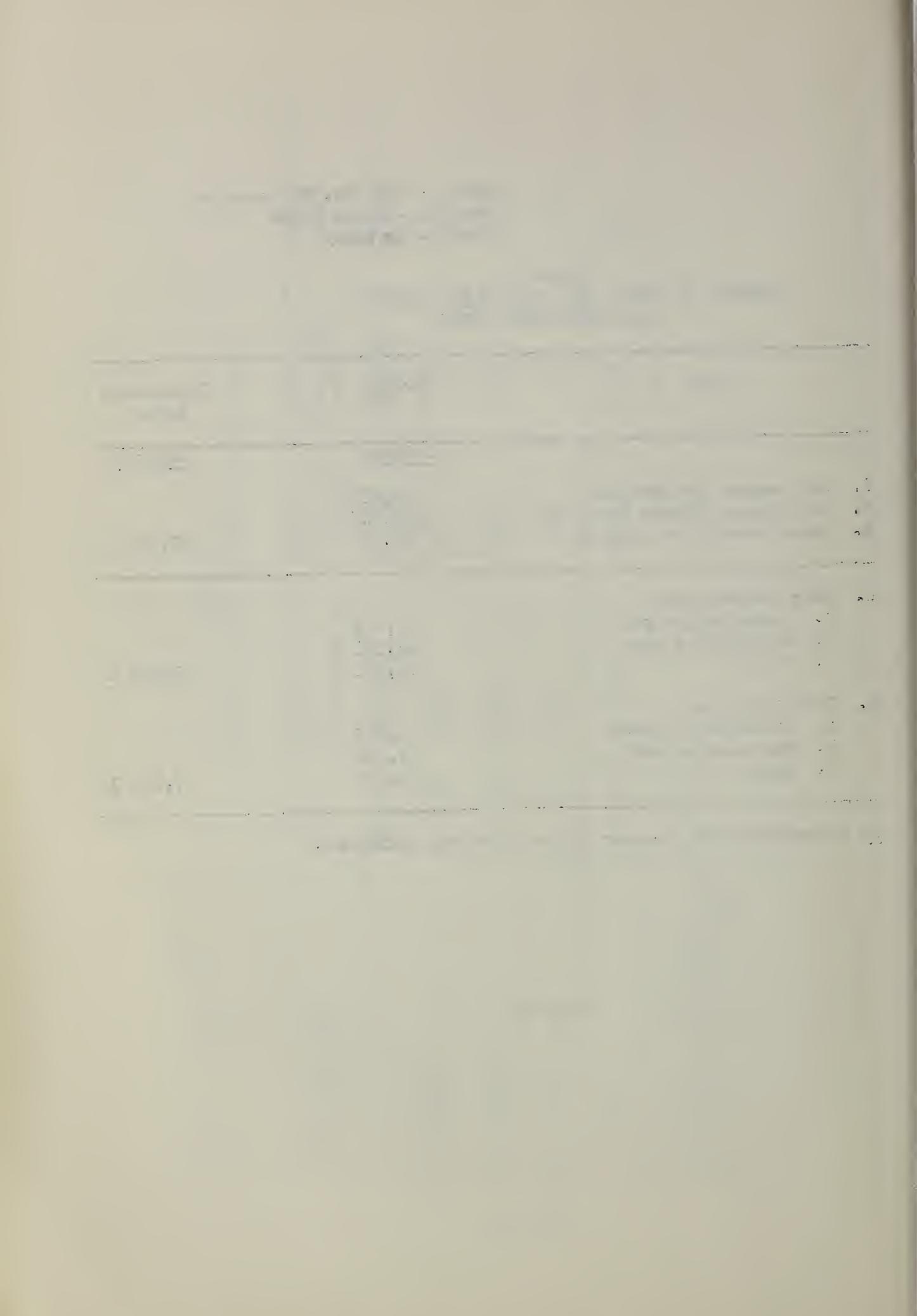
3/ "Other" land not included.

Basin - West Ky. Tributaries
 Project - Obion Creek
 State - Kentucky

TABLE IX
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS
 AND ASSOCIATED COSTS

Item	Total	Discounted Amount
	<u>Dollars</u>	<u>Dollars</u>
1. Net return with project	420,728	
2. Net return without project	335,025	
3. Gross benefit to project	85,703	<u>67,941 1/</u>
4. Farm drainage cost		
a. Installation cost	15,075	
b. Maintenance cost	12,251	
c. Total	27,326	<u>21,663 1/</u>
5. Conversion cost		
a. Installation cost	6,289	
b. Maintenance cost	3,160	
c. Total	9,449	<u>7,491 1/</u>

1/ Discounted from 10-year lag at 5 percent interest.



BAYOU DU CHIEN CREEK

Portion of
WEST KENTUCKY TRIBUTARIES
of
MR & T STUDY

SUMMARY TABLES



Basin - West Ky. Tributaries
Project - Bayou du Chien
State - Kentucky

TABLE I

Existing Land Use by Soil Mapping Units

Zone A

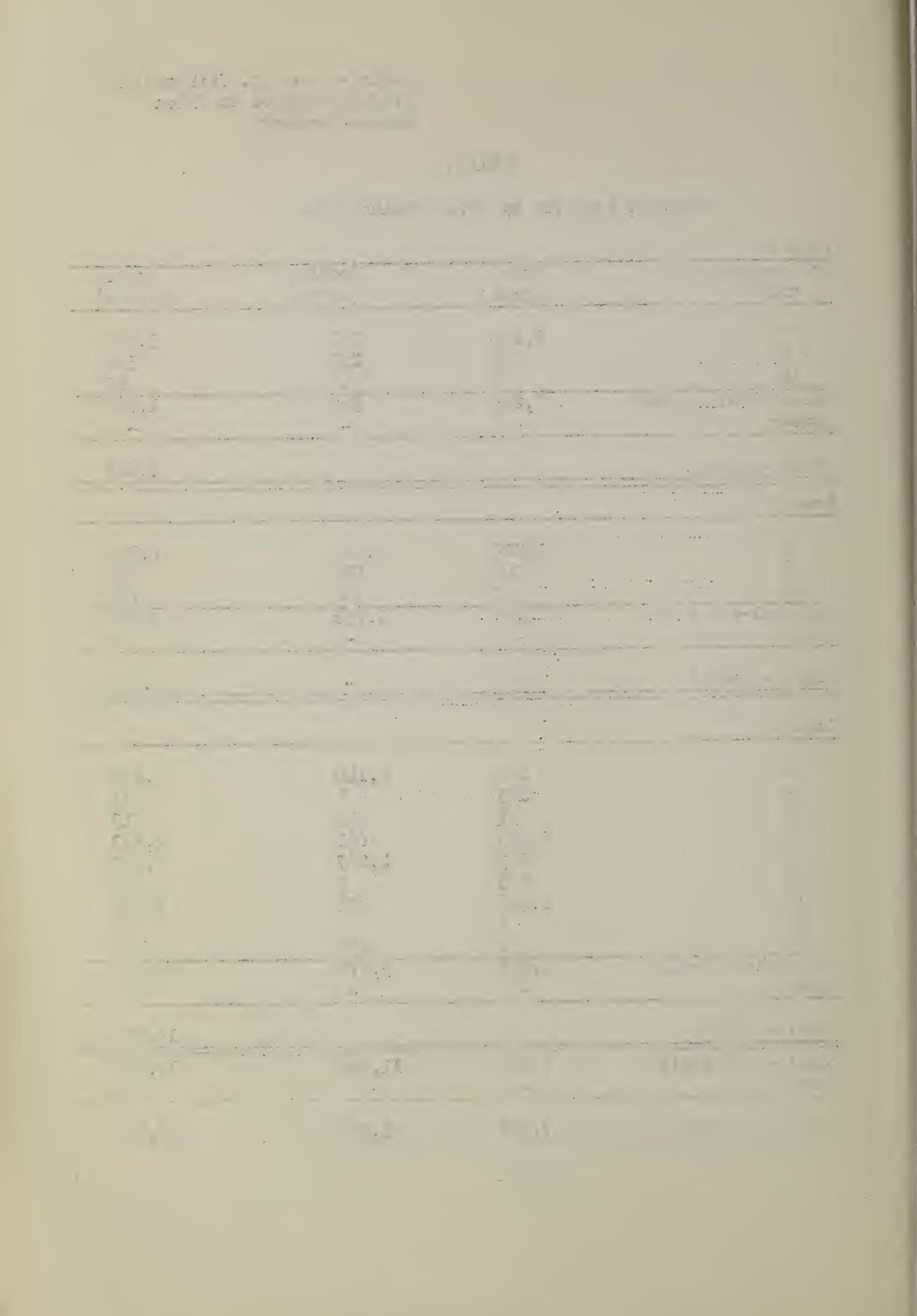
Soil mapping unit	Open (Acres)	Wooded (Acres)	Total (Acres)
7	1,106	291	1,397
8	142	241	383
14	7	16	23
Subtotal-all soils	1,255	548	1,803
Water	-	-	-
Total - Zone A			1,803

Zone B

7	1,222	1,077	2,299
8	240	575	815
14	0	102	102
Subtotal-all soils	1,462	1,754	3,216
Water	-	-	83
Total - Zone B			3,299

Zone C

1	294	4,140	4,435
2	103	8	111
6	94	19	113
7	1,953	680	2,633
8	965	4,287	5,252
9	223	7	230
10	1,445	302	1,747
11	5	0	5
14	0	235	235
Subtotal-all soils	5,082	9,678	14,760
Water	-	-	215
Total - Zone C			15,005
Total - All soils	7,799	11,980	19,779
Water	-	-	328
Total - Project	7,799	11,980	20,107

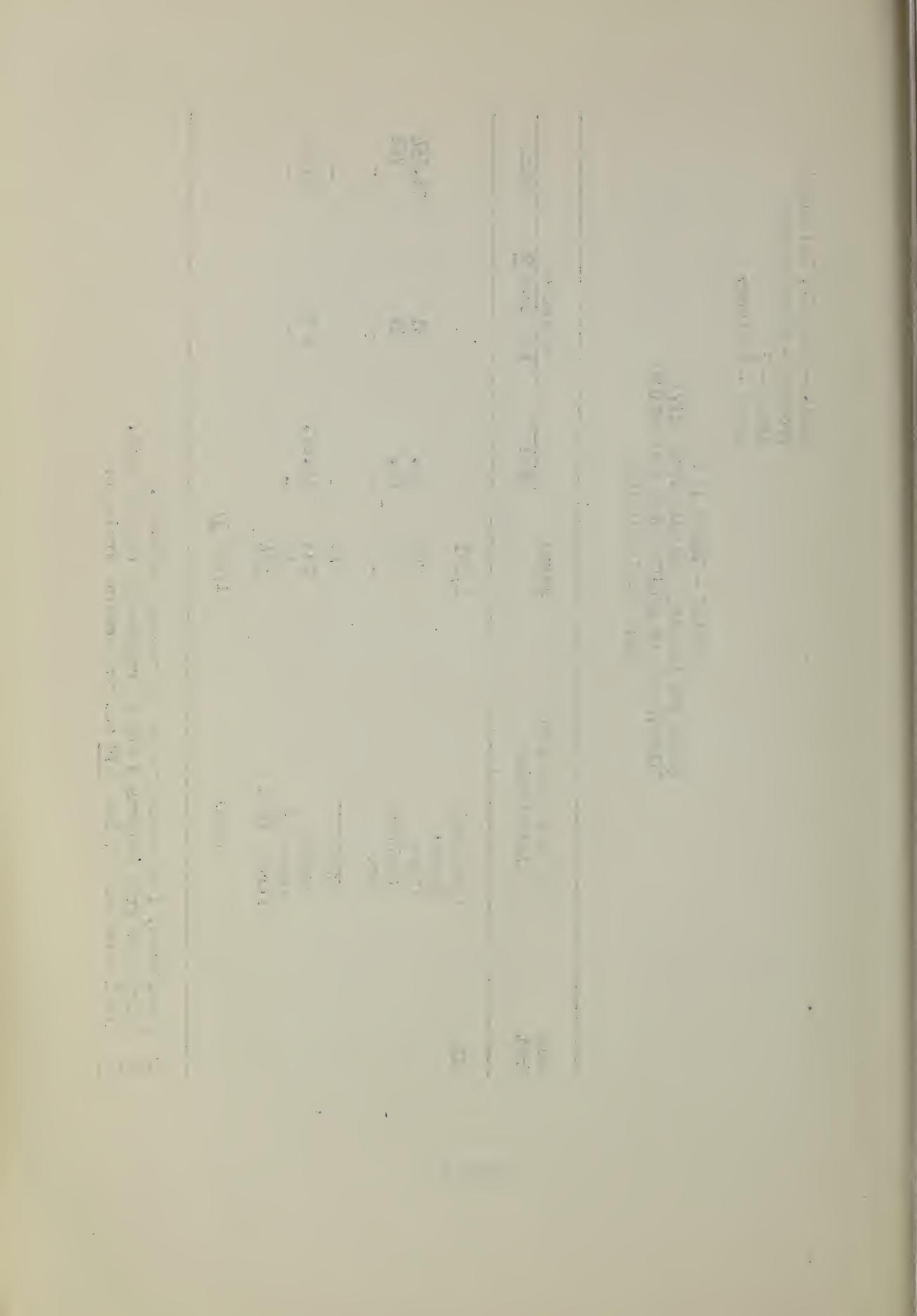


Basin - West Ky. Tributaries
 Project - Bayou du Chien
 Reach - 2
 State - Kentucky

SUMMARY - TABLE II A
 (Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCTION
 EXISTING CONDITIONS

Soil Unit	Land use and crop distribution	Acres	Unit	Production	
				Per acre	Total
All	Open land	1,091			
	Crops:				
	Corn	702	bu.	31	21,654
	Soybeans	39	bu.	19	741
	Hay	-	-	-	-
	Tidle				
	Pasture	63	-	-	-
	Other 1/ Forest land	233	lb.bf.	168	39,115
		54	-	-	-
		534			
	Total	1,625 3/			

^{1/} Farmsteads, farm roads, waste and non-agricultural.
^{2/} Calculated from Columns 3 and 6; rounded to nearest unit.
^{3/} Total area Zone A, less 178 ac. not needing drainage.



Basin - West Ky. Tributaries
 Project - Bayou du Chien
 Reach - 2
 State - Kentucky

SUMMARY - TABLE III A
 (Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

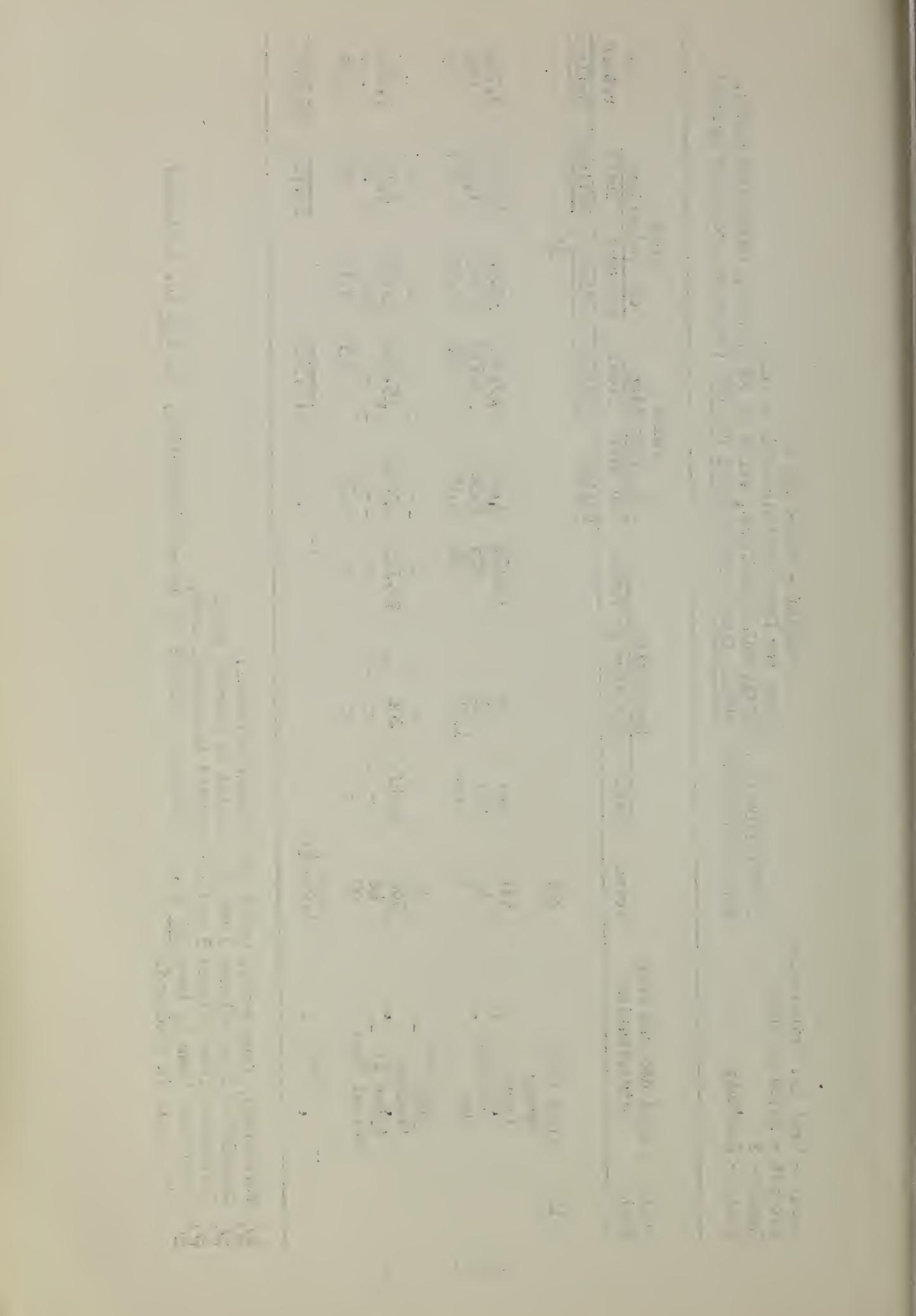
Soil Unit	Land use and crop distribution	Acres	Unit	Production			Value of production			Cost of production			Net return
				Per acre		Total	Per unit		Total	Per acre		Total	
				Dollars	Dollars		Dollars	Dollars		Dollars	Dollars		
All	Open land	921					16,126	1.45		23,383	33.06	13,588	9,795
Crops:							965	2.30		2,219	26.63	1,225	994
Corn	411	bu.	39				14	20.00		280	32.15	257	23
Soybeans	46	bu.	21										
Hay	8	tons	1.75										
Idle	26												
Pasture	384	lb.bf.	206				79,123	0.2004		15,856	21.30	8,180	7,676
Other 1/	46	"	"				"	"		"	"	"	"
Forest Land	90	"	"				"	"		9.39	845	5.14	463
Total										42,583		23,713	18,870

1/ Farms, roads, waste and non-agricultural.

2/ Calculated from Columns 3 and 6: rounded to nearest unit.

3/ Calculated from Columns 3 and 10: rounded to nearest cent.

4/ Total area Zone A, less 357 ac. not needing drainage and non-participation, and 435 ac. estimated to remain in woodland.



Basin - West Ky. Tributaries
 Project - Bayou du Chien
 Reach - 2
 State - Kentucky

SUMMARY - TABLE IV A
 (Zone for Drainage Calculations Only)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production			Value of production			Cost of production			Net return	
			Unit	Per acre		Total	Per unit	Total	Per acre	Total			
				2	3								
All	Open land	1,011											
Crops:													
Corn	bu.	643	bu.	63	1.45	1,0655	58,949	51.53	33,135	25,814			
Soybeans	bu.	60	ton	28	2.30	1,690	3,887	32.52	1,951	1,936			
Hay		26			2.5	65	20.00	1,300	44.37	1,154	146		
Idle													
Pasture	lb. bf.	232	-	274	-	63,767	0.2004	-	12,779	27.21	6,312	6,467	
Other 1/		50		-	-								
Forest Land		0											
Total						1,011 1/							
									76,915				
										42,552	34,363		

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from Columns 3 and 6 and rounded to nearest unit.

3/ Calculated from Columns 3 and 10 and rounded to nearest cent.

4/ Total area Zone A, less 357 acres not needing drainage and non-participation and 435 ac. estimated to remain in woodland.

Basin - West Ky. Tributaries
 Project - Bayou du Chien
 Reach - 2
 State - Kentucky

SUMMARY - TABLE II B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION
 EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		Total
			Unit	Per acre <u>2/</u>	
All	Openland	1,515			
	Crops:				
	Corn	774	bu.	34	26,618
	Soybeans	212	bu.	20	4,140
	Hay	147	Tons	1.6	235
	<u>Idle</u>	<u>84</u>			
	Pasture	245	lb.bf.	143	34,947
	Other <u>1/</u>	83	-	-	-
	Forest Land	<u>1,754</u>			
	Total	3,299			

1/ Farmssteads, farm roads, waste and non-agricultural
2/ Calculated from Columns 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries
 Project - Bayou du Chien
 Reach - 2
 State - Kentucky

SUMMARY - TABLE III B
 (Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production	Value			Cost per acre <u>4/</u>	Net return per acre <u>Dollars</u>
				Unit	Per acre	Total		
						Per unit		
All	Open Land	1,622						
Crops:								
Corn	bu.	642	42		26,903	1.45	39,010	35.26
Soybeans	bu.	182	26		4,695	2.30	10,799	30.35
Hay	tons	85	1.8		154	20.00	3,076	32.96
Idle		84	-		-	-	-	-
Pasture	lb.bf.	546	202		110,526	0.2004	22,149	20.64
Other		83	-		-	-	-	-
Forest Land		320	-		-	8.48	2,714	4.46
Total		1,942	2/				77,748	1427
								1,287
							143,660	34,088

1/ Farmssteads, farm roads, waste and non-agricultural.

2/ Total area of Zone B, less 1357 acres to remain in woods due to non-participation in land conversions.

3/ Calculated from Columns 3 and 6, rounded to nearest unit.

4/ Calculated from Columns 3 and 10, rounded to nearest cent.

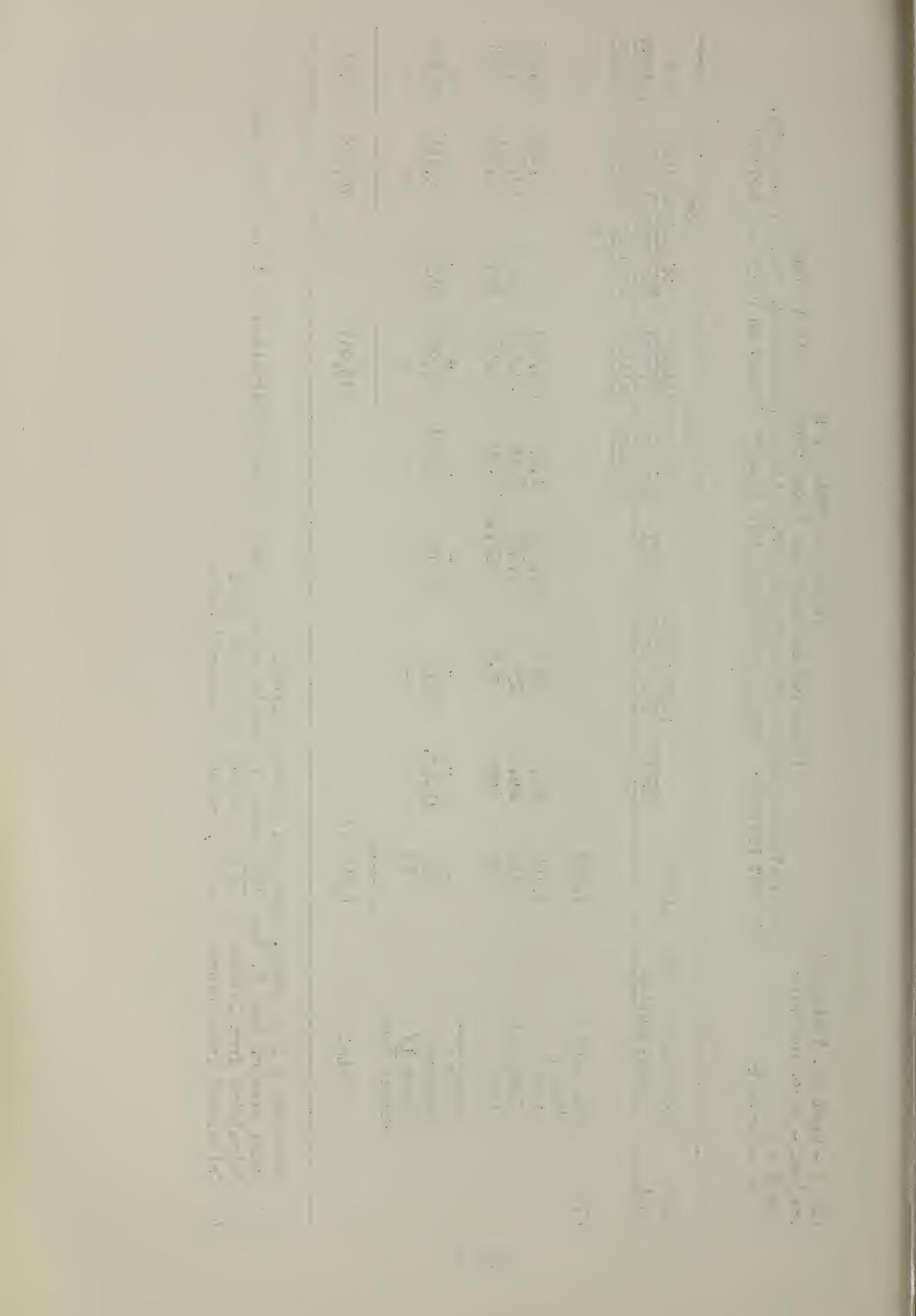
Basin - West Ky. Tributaries
 Project - Bayou du Chien
 Reach - 2
 State - Kentucky

SUMMARY - TABLE IV B

(Zone for Drainage and Flood Control Calculations)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITH PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Production			Value of production			Cost of production			Net return per acre	
			Unit	Per acre	3/ Total	Per unit	Total	Per acre	Total	Dollars	Dollars		
All	Open land	1,942										4/	
Crops:													
Corn	bu.	1,189	58	69,676	1.45	101,031	48.11	57,199	43,832				
Soybeans	bu.	311	29	9,164	2.30	21,077	33.99	10,572	10,505				
Hay	tons	136	2.4	327.8	20.00	6,556	42.90	5,834	722				
Idle													
Pasture	-	212	lb.bf.	241	-	51,166	-	-	-				
Other 1/	-	83	-	-	-	0.2004	10,253	24.26	5,144	5,109			
Forest Land	-	0	-	-	-	-	-	-	-	-	-		
Total		1,942	2/										

1/ Farmsteads, farm roads, waste and non-agricultural.
 2/ Total area of Zone B, less 1357 acres to remain in woods due to non-participation in land conversions.
 3/ Calculated from Columns 3 and 6, rounded to nearest unit.
 4/ Calculated from Columns 3 and 10, rounded to nearest cent.



Basin - West Ky. Tributaries
 Project - Bayou du Chien
 Reach - 2
 State - Kentucky

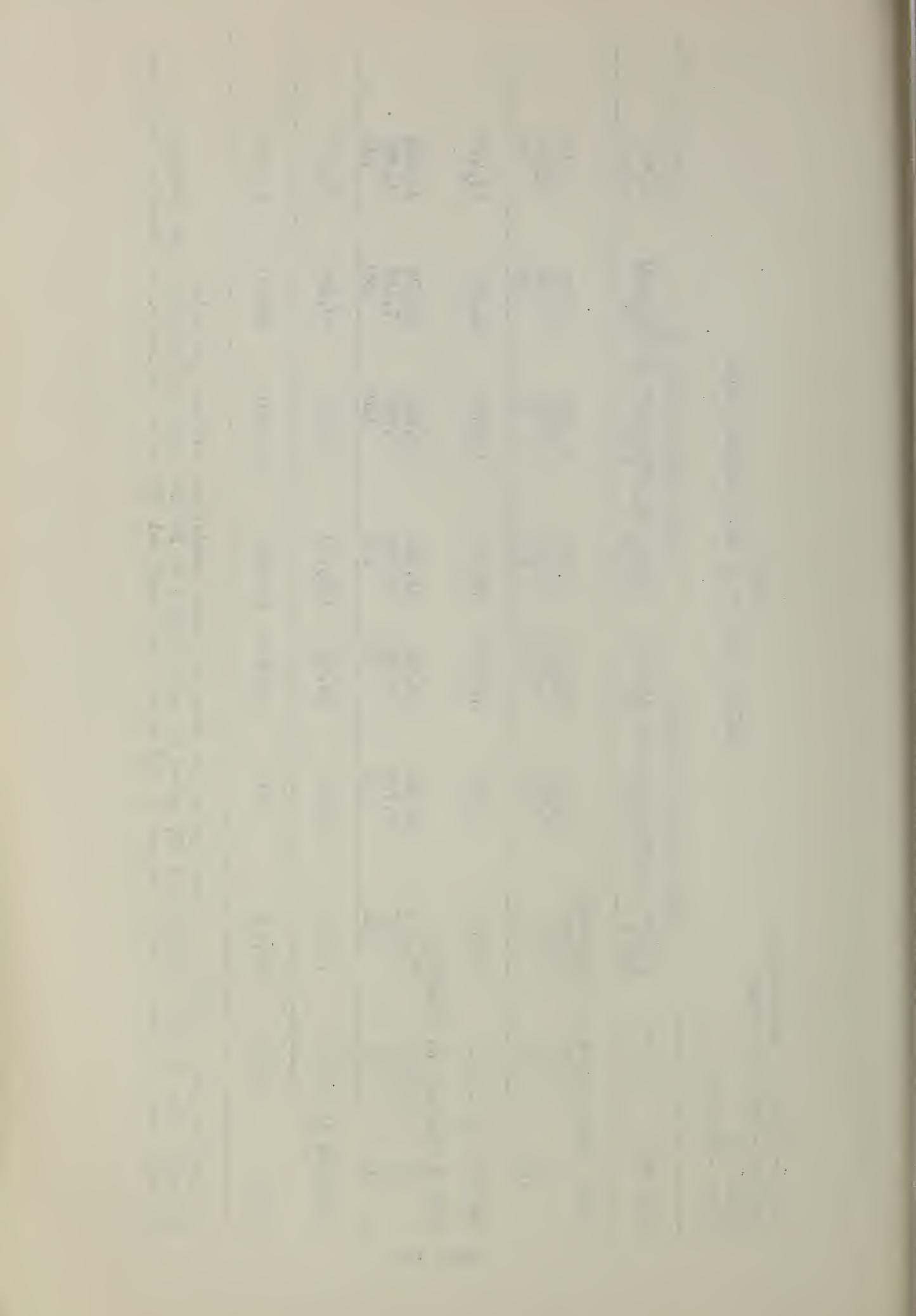
TABLE V
 REACH 2 Summary by Soil Mapping Units

Soil Unit	Acres	Future without project (value of production in dollars)		Future with project 1/ (value of production in dollars)		Difference in net value
		Gross	Net	Gross	Net	
ZONE A (Not subject to flooding)						
7	875	21,950	17,722	69,526	38,555	30,971
8	129	1,725	1,120	7,188	3,898	3,290
14	7	36	30	201	99	102
Subtotal 2/ 1,011		42,583	23,711	76,915	42,552	34,363
ZONE B (Subject to flooding)						
7	1,522	70,726	39,783	30,943	121,681	69,254
8	315	6,835	3,779	3,056	16,606	9,185
14	22	186	98	88	630	310
Subtotal 3/ 1,859		77,747	43,660	34,087	138,917	78,749
Total	2,870	120,330	67,371	52,959	215,832	121,301
						94,531
						41,572

1/ Includes Zone C which is assumed to be the same as future conditions without project.

2/ Total area of Zone A reduced by 357 acres not anticipated to receive drainage benefits from project.

3/ Total area of Zones B and C reduced by 328 acres other land and 1357 acres estimated to remain as woodland.



Basin - West Ky. Tributaries
 Project - Bayou du Chien
 Reach - 1
 State - Kentucky

SUMMARY - TABLE II C
 (Zone of No Project Benefit)
 COMPUTATION OF AGRICULTURAL PRODUCTION: EXISTING CONDITIONS

Soil unit	Land use and crop distribution	Acres	Production		Total
			Unit	Per acre $\frac{1}{2}$	
All	Open land	5,327			
	Crops:				
	Corn	1,497	bu.	29	43,960
	Soybeans	1,890	bu.	17	31,224
	Hay	-	-	-	-
	Idle				
	Pasture	1,695	lb.bf.	-	-
	Other $\frac{1}{2}$ /	245	-	155	262,545
	Forest Land	<u>9,678</u>			
	Total	15,005			

$\frac{1}{2}$ / Farmssteads, farm roads, waste and non-agricultural.

$\frac{1}{2}$ / Calculated from Columns 3 and 6, rounded to nearest unit.

Basin - West Ky. Tributaries
 Project - Bayou du Chien
 Reach - 1
 State - Kentucky

SUMMARY - TABLE III C
 (Zone of No Project Benefit)
 COMPUTATION OF AGRICULTURAL PRODUCTION, VALUE OF PRODUCTION, PRODUCTION COSTS,
 AND NET RETURNS: FUTURE CONDITIONS WITHOUT PROJECT (Based on projected prices)

Soil unit	Land use and crop distribution	Acres	Unit	Production		Value of production		Cost of production		Net return per acre
				Per acre	Total	Per unit	Total	Per acre	Total	
All	Open land	5,942								
Crops:										
Corn	1,430	bu.	35			50,104	1.45	72,652	30.04	42,954
Soybeans	2,024	bu.	22			44,469	2.30	102,279	27.60	55,853
Hay	-	-	-			-	-	-	-	-
Idle										
Pasture	2,243	lb.bf.	178			399,292	0.2004	80,019	18.10	40,592
Other 1/	245	-	-			-	-	-	-	-
Forest Land	9,063					8.16		73,954	4.63	41,962
Total	15,005							328,904	181,361	147,543

1/ Farmsteads, farm roads, waste and non-agricultural.

2/ Calculated from Columns 3 and 6, rounded to nearest unit.
 3/ Calculated from Columns 3 and 10, rounded to nearest cent.

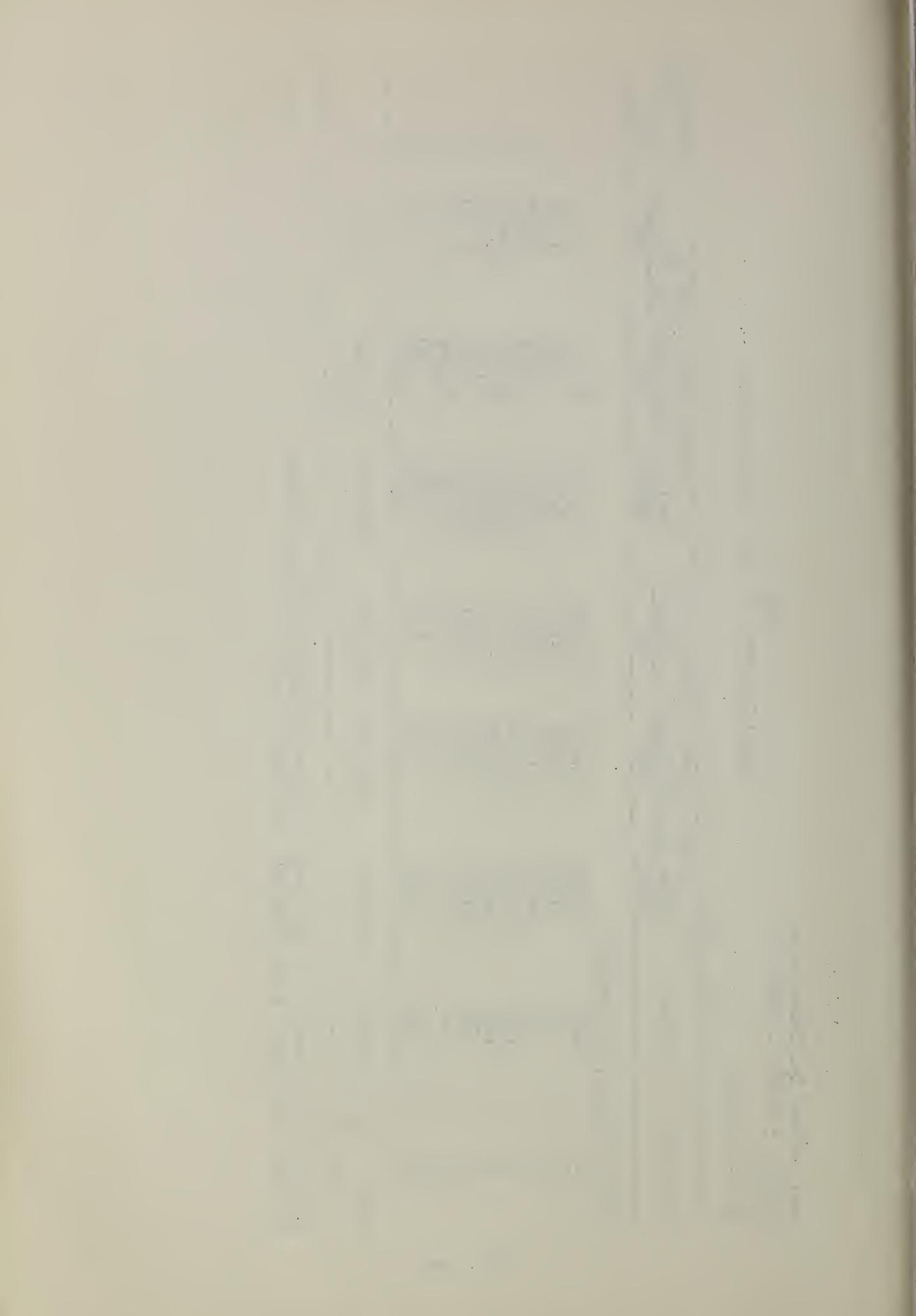
Basin - West Ky. Tributaries
 Project - Bayou du Chien
 Reach-1
 State - Kentucky

TABLE V
 REACH 1 Summary by Soil Mapping Units

Soil unit	Acres	Future without project (value of production in dollars)		Future with project 1/ (value of production in dollars)		Difference In net value
		Gross	Net	Gross	Cost	
ZONE C (Subject to flooding)						
1	4,434	70,008	38,256	31,752	70,008	38,256
2	111	8,168	4,430	3,738	8,168	4,430
6	113	6,373	3,403	2,970	6,373	3,403
7	2,633	114,646	61,350	53,296	114,646	61,350
8	5,252	64,188	37,099	27,089	64,188	37,099
9	230	10,276	5,536	4,740	10,276	5,536
10	1,747	52,940	29,974	22,966	52,940	29,974
11	5	363	210	153	363	210
11	235	1,918	1,088	830	1,918	1,088
Total	2/	14,760	328,880	181,346	147,534	328,880
						181,346
						147,534
						0

1/ Zone C is assumed to be the same as future conditions without project.

2/ Total area Zone C reduced by 245 acres "other land".



Basin - West Ky. Tributaries
 Project - Bayou du Chien
 State - Kentucky

TABLE V
 PROJECT AREA SUMMARY BY SOIL MAPPING UNITS

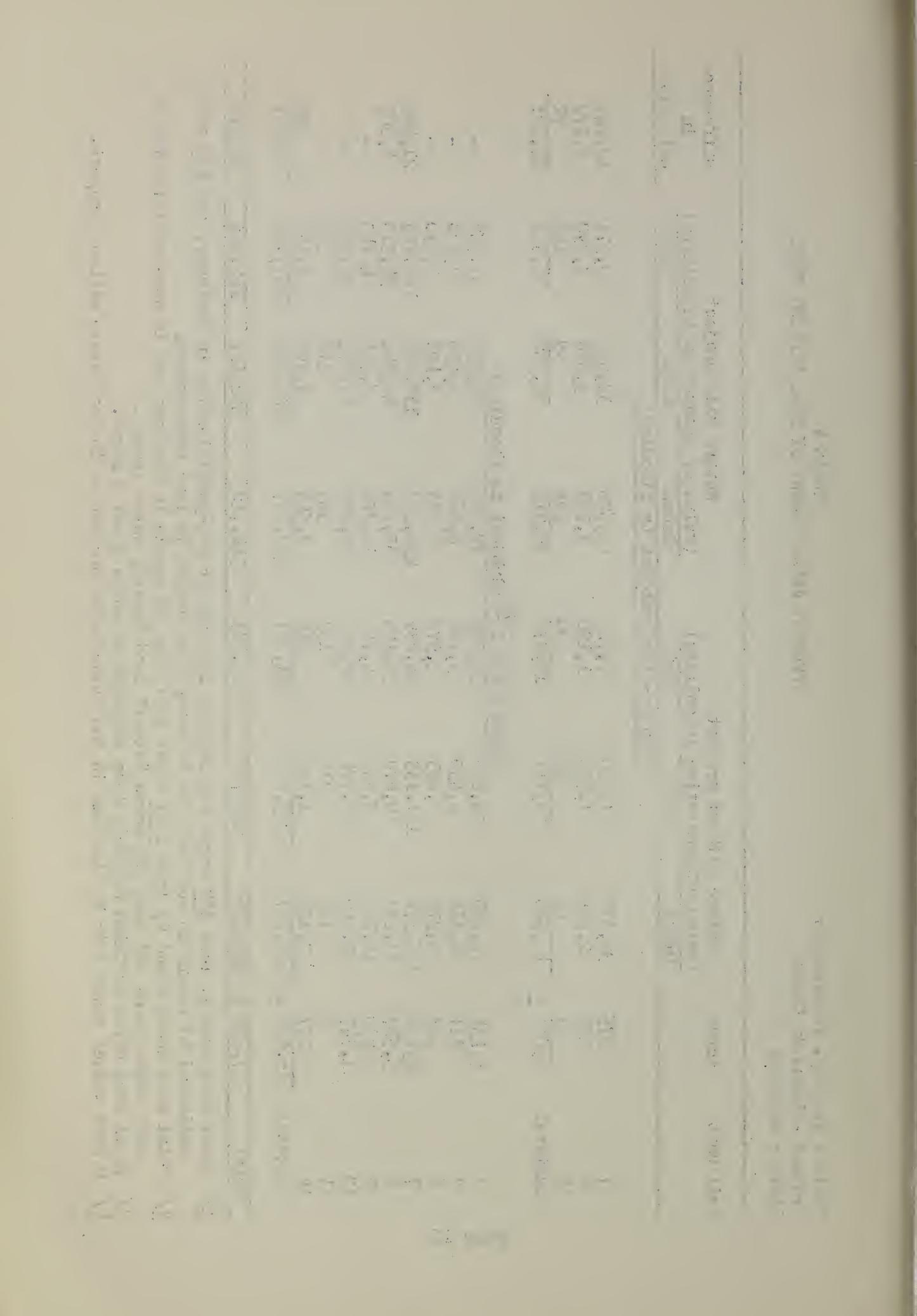
Soil unit	Acres	Future without project (value of production in dollars)			Future with project (value of production in dollars)			Difference in net value
		Gross	Cost	Net	Gross	Cost	Net	
ZONE A - (Not subject to flooding)								
7	875	39,672	21,950	17,722	69,526	38,555	30,971	13,249
8	129	2,845	1,725	1,120	7,188	3,898	3,290	2,170
14	7	66	36	30	201	99	102	72
Subtotal		1,011 1/	42,583	18,872	76,915	42,552	34,363	15,491
ZONES B AND C 1/ (Subject to flooding)								
1	4,434	70,008	38,256	31,752	70,008	38,256	31,752	-
2	111	8,168	4,430	3,738	8,168	4,430	3,738	-
6	113	6,373	3,403	2,970	6,373	3,403	2,970	-
7	4,155	185,372	101,133	84,239	236,327	130,604	105,723	21,484
8	5,567	71,023	40,878	30,145	80,794	46,284	34,510	4,365
9	230	10,276	5,536	4,740	10,276	5,536	4,740	-
10	1,747	52,940	29,974	22,966	52,940	29,974	22,966	-
11	5	363	210	153	363	210	153	-
14	257	2,104	1,186	918	2,548	1,398	1,150	232
Subtotal	16,619 2/	406,627	225,006	181,621	467,797	260,095	207,702	26,081
Total	17,630 3/	449,210	248,717	200,493	544,712	302,647	242,065	41,572

1/ Total area Zone A, less 357 acres not needing drainage or non-participation in drainage, and 435 acres estimated to remain in woodland due to non-participation in land conversions.

2/ Total area Zones B and C, less 1357 acres estimated to remain in woodland due to non-participation in land conversions and less 328 acres "other" land (mostly water areas).

3/ Total area Bayou du Chien Project, less acreages in notes 2 and 3 above.

4/ C Zone values assumed to be the same in the future with project as in the future without project.



Basin - West Ky. Tributaries
 Project - Bayou du Chien
 Reach - 2
 State - Kentucky

TABLE VI - SUMMARY
 LAND CONVERSIONS WITH PROJECT

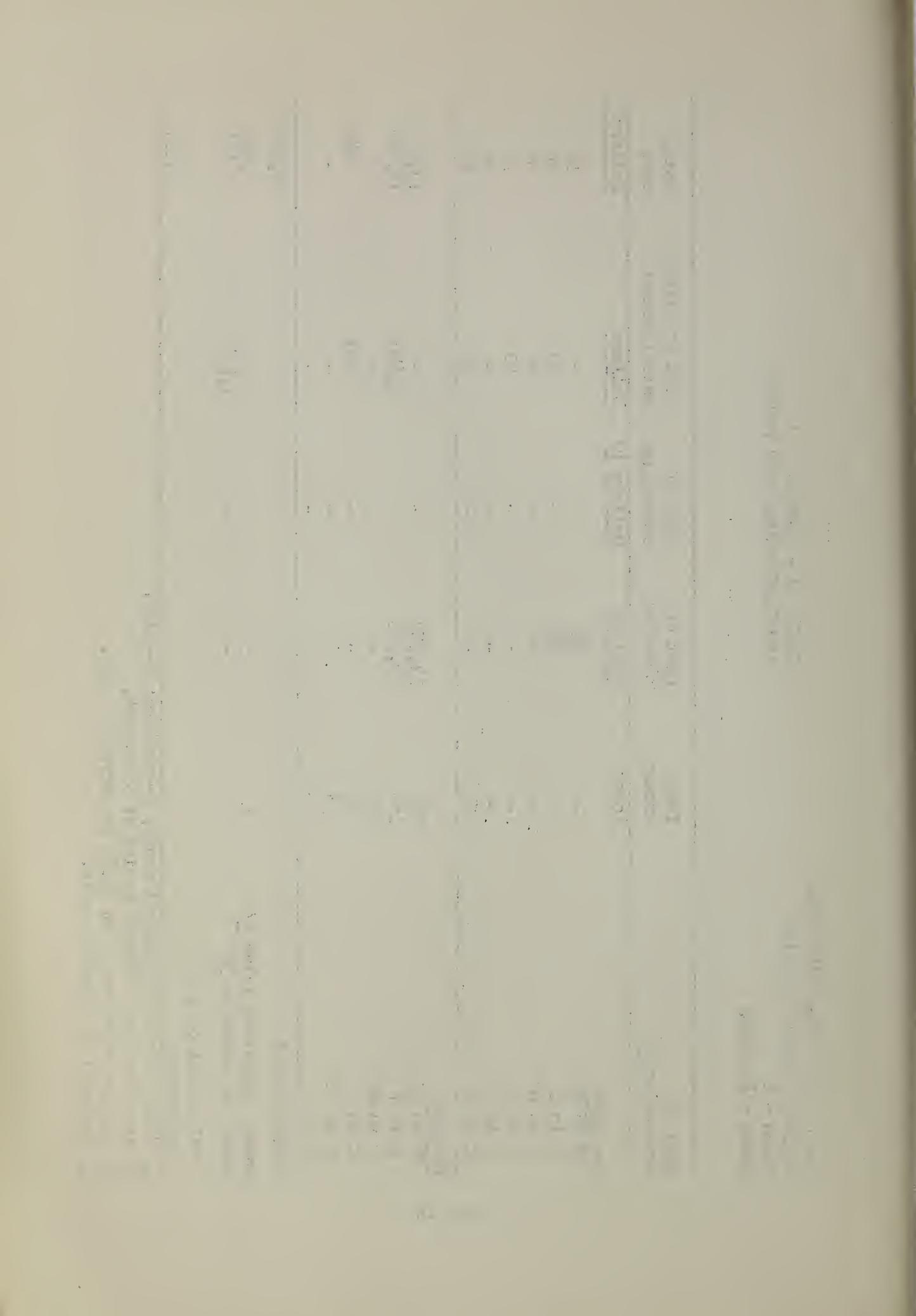
Type of conversion <u>1/</u>	Total amount	Cost of clearing	Cost of smoothing	Cost of pasture establishment	Total cost
Per acre	Acres	Dollars	Dollars <u>1/</u>	Dollars	Dollars
W to GC	-	56	-	-	56
W to P	-	56	-	40	96
P to GC	-	-	-	-	-
X to P	-	-	-	40	40
X to GC	-	-	-	-	-
GC to P	-	-	-	40	40
Project					
W to GC	242	13,552	-	-	13,552
W to P	166	9,296	-	6,640	15,936
P to GC	667	-	-	-	-
X to P	17	-	-	680	680
X to GC	93	-	-	-	-
GC to P	0	-	-	-	-
Total Project					30,168
Annual amortized value <u>2/</u>	-	-	-	-	1,653
Annual maintenance <u>3/</u>	-	-	-	-	1,464
Total annual cost of conversions					3,117

1/ W--woodland; GC--general crops; P--pasture; X--idle.

2/ Amortized over 50-year period at 5 percent.

3/ Pasture maintenance at \$8.00 per acre per year.

1/ Included in clearing costs.



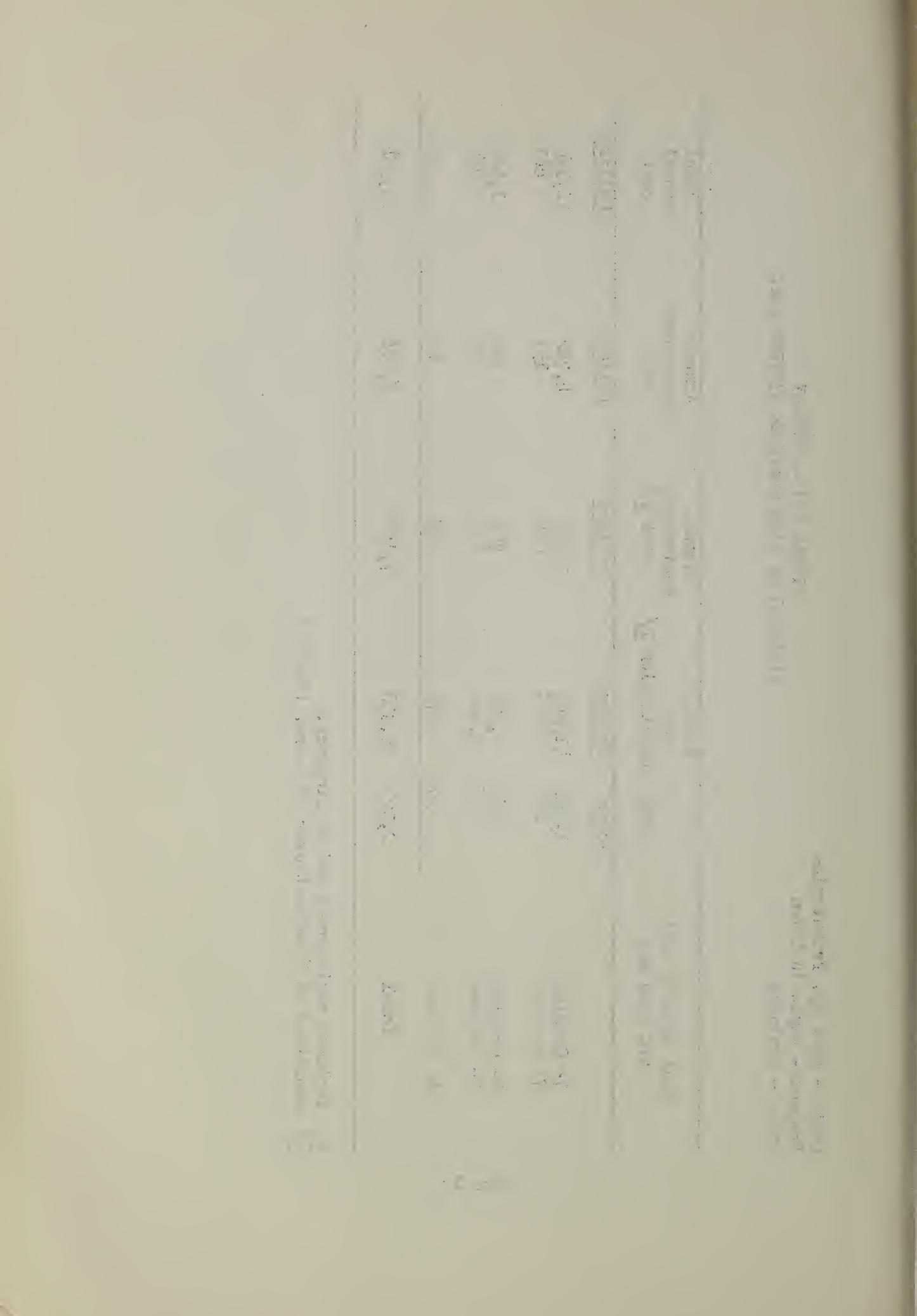
Basin - West Ky. Tributaries
 Project - Bayou du Chien
 State - Kentucky

TABLE VII - SUMMARY
 ANALYSIS OF FARM DRAINAGE SYSTEMS COSTS

Soil mapping unit and land use	Area	Installation 1/ cost	Total	Annual	Annual	Total
			Acres	Dollars	equivalent cost 2/ cost	annual cost
7- Cropland	1,744	41,444	5,368	4,782	10,150	
7- Pasture	258	5,125	664	197	861	
8- Cropland	257	6,107	791	705	1,496	
8- Pasture	105	2,086	270	80	350	
14- Pasture	29	576	75	22	97	
Total	2,393	55,338	7,168	5,786	12,954	

1/ Includes engineering and contingency.

2/ Amortized at 5 percent over 10 years. (0.1295)



Basin - West Ky. Tributaries
 Project - Bayou du Chien
 Reach - 2
 State - Kentucky

TABLE IX
 SUMMARY OF ANNUAL NET PRODUCTION RETURNS
 AND ASSOCIATED COSTS

Item	Total	Discounted amount
	Dollars	Dollars
1. Net return with project	242,065	
2. Net return without project	200,493	
3. Gross benefit to project	41,572	
		32,956 <u>1/</u>
4. Farm drainage cost		
a. Installation cost	7,168	
b. Maintenance cost	5,786	
c. Total	12,954	
		10,269 <u>1/</u>
5. Conversion cost		
a. Installation cost	1,653	
b. Maintenance cost	1,464	
c. Total	3,117	
		2,471 <u>1/</u>

1/ Discounted for a 10 year lag at 5 percent interest.

